3M IP Camera: Bullet + WDR + PoE
User Manual

Release: 3 April 2014

- CONTENTS -

Chapter I Introduction 3

1.1 Highlights of your new Network IP Camera 3

1.2 Safety Instructions 4

1.3 Packaging Contents 5

1.4 Familiar with your new Network IP Camera 6

1.5 DI/DO PIN ASSIGNMENT 9

1.6 Installation of the Network IP Camera 10

2.1 Locate the IP address of Network IP Camera 12

2.2 Access to IP Camera's Web User Interface and Install ActiveX Plugin 14

2.3 Viewing Live Video 17

2.4 Client Settings 20

Chapter III Advanced Configuration 22

3-1 System 23

3-2 Security 25

3-3 Network 27

3-3-1 'General' setup page 27

3-3-2 'Advanced' setup page 30

3-4 IP Filter 33

3-5 Video 35

3-5-1 Image Setting 36

3-5-2 Video Setting 39

3-5-3 Overlay Setting 42

3-6 Audio 44

3-7 Motion 45

3-8 PTZ Control 47
3-9 Event 49
3-9-1 Settings 50
3-9-2 Media 52
3-9-3 Event Server 53
3-10 Recording 57
3-11 SDHC 58
3-12 Log 60
3-13 Device Info 61
3-14 Maintenance 62
3-15 Language 63
Chapter IV Troubleshooting 64
Chapter V Digital I/O User Guide 66
Chapter VI Specification 68

Chapter I Introduction

1.1 Highlights of your new Network IP Camera

Congratulates on purchasing this high-resolution 3Mega pixels network IP Camera! This IP Camera provides 3Mega pixels high-resolution video quality, with the advanced megapixel lens, you can view images remotely in more detail than conventional close-circuit cameras.

Other highlights of this network IP Camera include:

- Ultra-high resolution 3Mega pixel CMOS image sensor.
- Analog video (BNC) output, works with conventional video devices such as TV Monitors, analog DVRs, etc.
- Digital input / output interface lets you connect peripherals such as external alarm, sensor, etc.
- Audio input / output interface, you can listen to voices in remote place, and speak to person in remote place.
- Built-in Micro-SD card slot for local storage, which can act like a stand-alone DVR.
- Two Way audio.
- 3GPP Mobile Surveillance Supported.
- RS-485 communication supported.
- ONVIF Compliant.
- Support IEEE802.3af Power over Ethernet (PoE) standard.

1.2 Safety Instructions

Please follow the safety instructions listed below when you're using this Network IP Camera, or you would harm this camera and / or yourself! Also, the warranty will become void if you disobey these safety instructions.

- This Network IP Camera is sophisticated electronic device; do not drop it from high places.
- Do not place this IP Camera at hot / humid places, and avoid direct sunlight.
- This IP Camera is not a toy; keep it out from the reach of children.
- Do not insert any accessories of this IP Camera into your body.
- Make sure lens set is secured when you're using this IP Camera, lens set may fall down if it's not properly secured, and cause damage to human and itself.
- If you want to use this IP Camera at any place that may be spilled by water or dirt, a secure and water-proof camera housing is required.
- Do not pull any cord that is connected to this IP Camera by force.
- IP Camera will become hot after long time of use. Refrain from touch IP Camera with hand, or cover this IP camera with paper or cloth.
- Never connect powered cable to IP Camera's DI/DO contacts.
- If the IP Camera falls into water when powered, do not attempt to retrieve it back by yourself! Find a qualified electric technician for help.

1.3 Packaging Contents

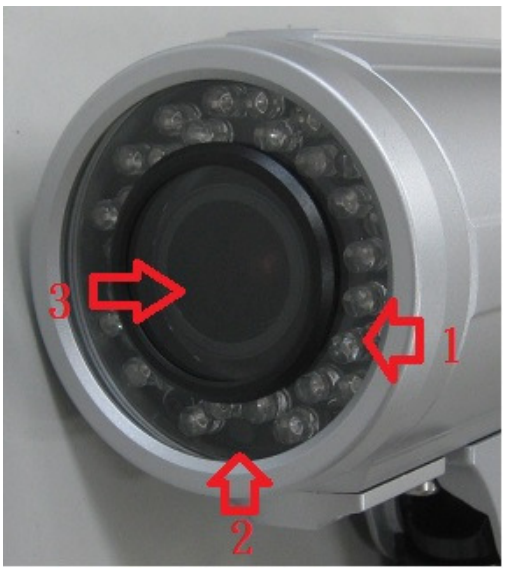
Please check the contents of your new Network IP Camera when you unpack the package. If any item is missing, please contact your dealer of purchase for help.

Item No.	Description	Quantity
1	Network IP Camera with Bracket	1
2	Sun Shield Kit	1
3	CDROM	1
4	Quick Installation Guide	1
5	Accessory pack	1

1.4 Familiar with your new Network IP Camera

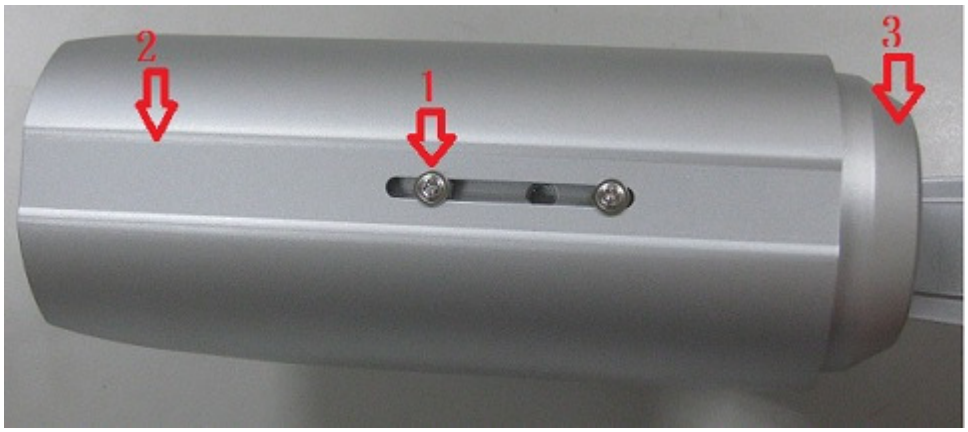
Item	Description
1. IP camera device	IP camera
2. I/O cable	RS485-+ , DI/DO , GND , DC12Volt/2A input Reset Button , Audio output , Audio input Network, RJ45 connector TV output, BNC connector
3. Bracket	Anti-sheared bracket

[Front site]



Item	Description
1. IR-LED	Used for illumination assistance under night mode
2. Day/night sensor	Used for day/night detection and IR-LED ON/OFF control
3. Lens	Vari-focal focal length.

[Back]



Item	Description
1. Sun Shield Screw	Connects between camera device body & sun shield.
2. Sun Shield	Protect camera device body from sun shine or rain directly
3. Camera device body	IP camera metal case
4. Bracket	The anti-sheared bracket

5. Cable Glands	For water proof
6. Zoom/Focus Screw	Screw for zoom/focus adjust

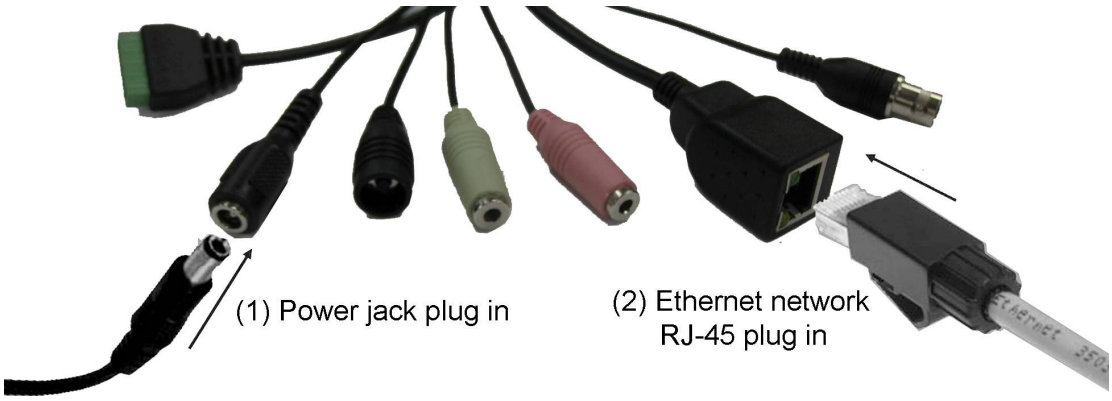
1.5 DI/DO PIN ASSIGNMENT

Item	Description
1	- : RS485-
	+ : RS485+
	1 : DO
	2 : GND
	3 DI
2	DC12 Volt/2A input
3	Reset Button
4	Audio output
5	Audio input
6	Network, RJ45 connector, two LED index, orange color is power index, green is network index
7	TV output, BNC connector

※Please check the I/O cable attached index before insert or release any wire.

1.6 Installation of the Network IP Camera

Please follow the instructions below to setup your new IP camera.



1. Connect Ethernet cable to LAN port.
2. Plug DC power adapter to power outlet on the wall.
3. Connect DC power cable to IP Camera's DC power connector.
4. If everything's ok, you should see the left LED light on LAN port light up. If not, please recheck every step and try again, or ask your dealer of purchase for help.
5. Unplug the power then find the screws in the package, use screwdriver to fix the sun shield on the device's main body.

6. Secure the bracket of bullet camera on the wall.

7. Repower on the camera and refer to the following procedures to access and configure it.

8. If this IP Bullet camera is connected to a PoE switch then the device can be powered on without use the power adapter.
9. Adjust the zoom/focus range through the 'zoom/focus screw', which shows in the following picture.

Chapter II Access Network IP Camera by Web UI

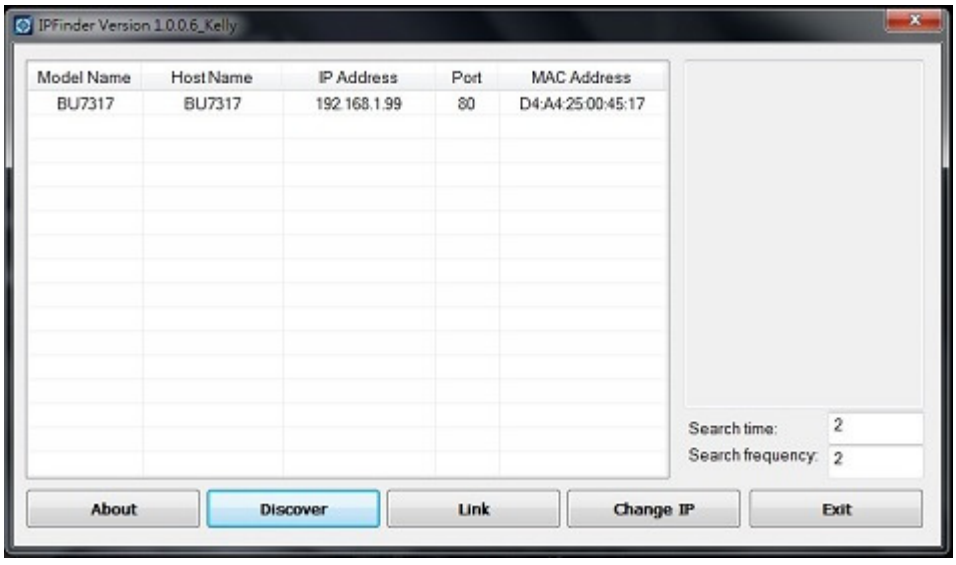
2.1 Locate the IP address of Network IP Camera

You can use your new Network IP Camera by its web user interface via web browser. Currently the viewing system requirement for Network IP camera is:

- OS: Microsoft Windows XP / Vista / WIn7 / Win8
- Browser: IE8 / IE9 / IE10 32bit
- Cell phone: 3GPP player
- Quick Time: 7.0 or above

You must know the IP address of IP Camera before you can connect to it. The IP Camera will use DHCP server on your local network to obtain an IP address automatically by default. So, you can check your DHCP server's IP address lease table to find the IP address of IP Camera.

You can also use the utility named 'IPFinder.exe' to find the IP address of IP Camera, which is located on CD-ROM, and choose the camera of "Host Name: BU7317".



Press 'Discover' button to search for all IP Cameras on your local network (make sure all IP Cameras are powered on and connect to local network first). When you find any IP Camera, you can click on it and click 'Link' button to connect to it by your web browser.

If you need to change a certain IP Camera's IP address, you can also click on the IP Camera you wish to change IP address, then click 'Change IP' button to change select IP Camera's IP address setting.

If you no longer need to use this utility, click 'Exit' button to close it.

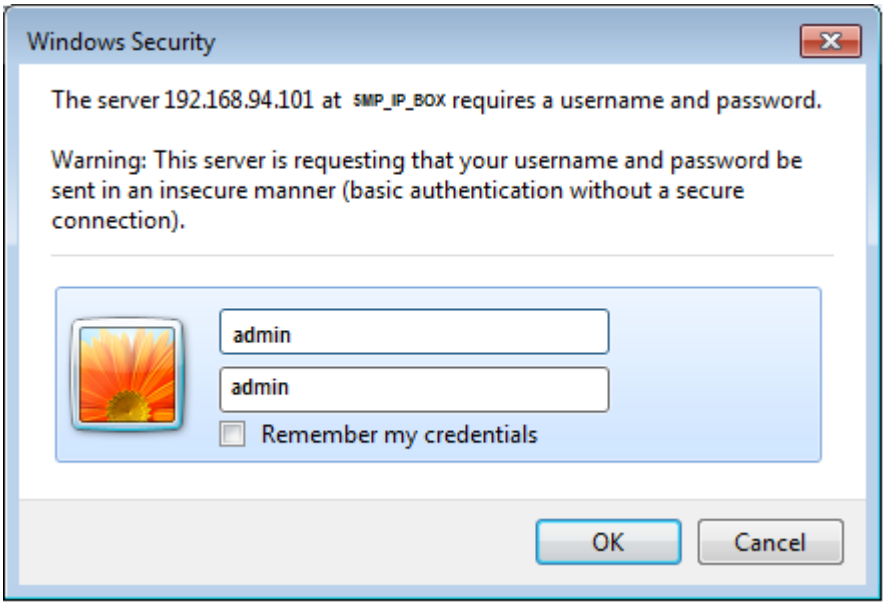
Please note:

If you have several network connections, such as "Wireless Function", please disable the "Wireless Functions" or / and other network connections that is not connected to IP camera,, or IP finder may fail to search IP camera!

2.2 Access to IP Camera's Web User Interface and Install

ActiveX Plugin

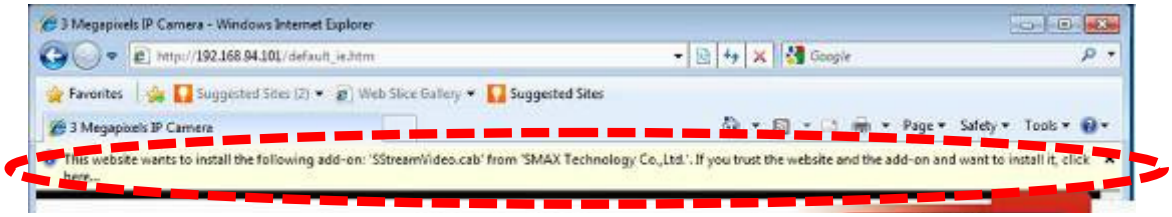
When you know the IP address of IP Camera, you can connect to it by Internet Explorer web browser by entering its IP address in address bar. The use login screen will appear when you get connected:


Windows Security
The server 192.168.94.101 at SMP_IP_BOX requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
admin
admin
Remember my credentials
OK
Cancel

IP Camera's administrator username and password are both 'admin' (lower case) by default. Click 'OK' button or press 'ENTER' key on your keyboard when you finish entering username and password.

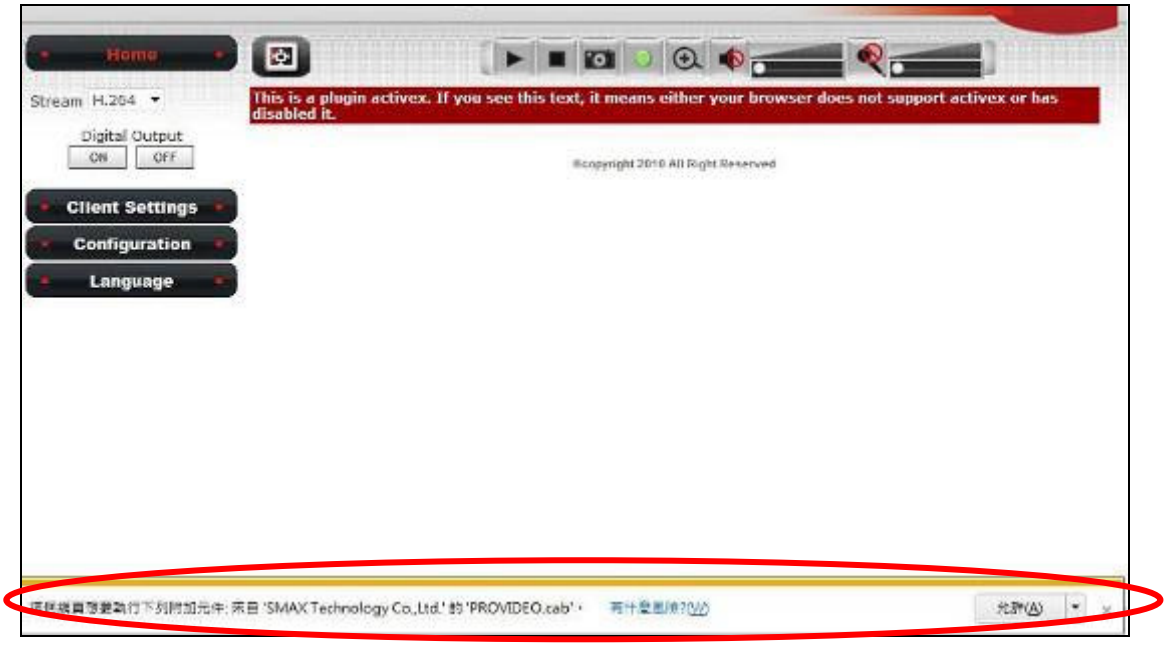
When you connect to IP Camera for the first time, you'll see the following message. This message prompts you that you need to install ActiveX plugin before you can see the video from IP Camera.

For IE 8 and earlier version:


3 Megapixels IP Camera - Windows Internet Explorer
Favorites
Suggested Sites
3 Megapixels IP Camera
This website wants to install the following add-on: 'SStreamVideo.cab' from 'SMAX Technology Co.,Ltd.'. If you trust the website and the add-on and want to install it, click here...

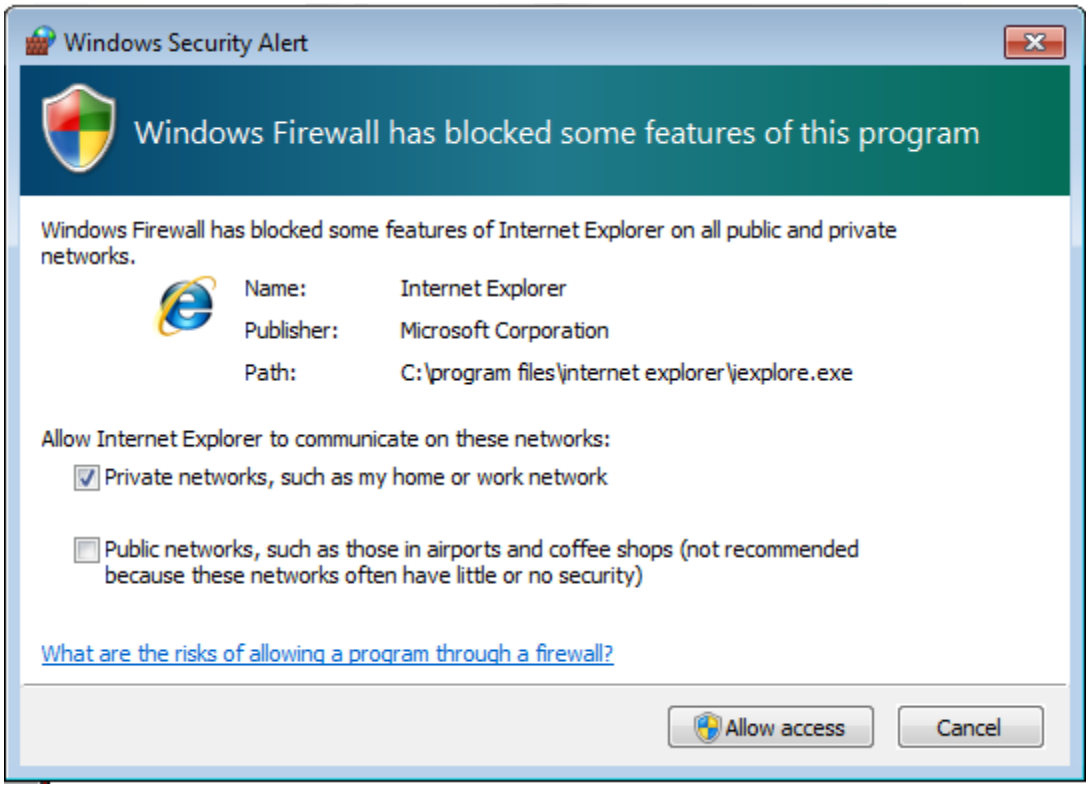
Right click the indication bar and click:
''Install This Add-on for All Users on This Computer…'
to install ActiveX plugin.

For IE 9 or above version:

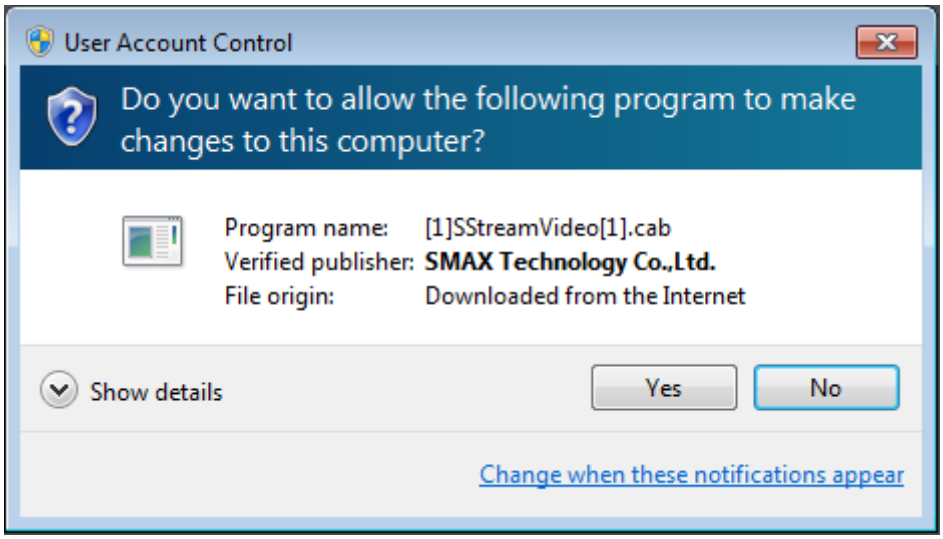

Home
Stream H.264
Digital Output
ON
OFF
Client Settings
Configuration
Language
This is a plugin activex. If you see this text, it means either your browser does not support activex or has disabled it.
Copyright 2010 All Right Reserved
'SMAX Technology Co.,Ltd.' 的 'PROVIDEO.cab'

Click 'Install' button located at the bottom of IE to install ActiveX plugin.

If you're prompted that:
'Windows Firewall has blocked some features of this program'


Windows Security Alert
Windows Firewall has blocked some features of this program
Windows Firewall has blocked some features of Internet Explorer on all public and private networks.
Name: Internet Explorer
Publisher: Microsoft Corporation
Path: C:\program files\internet explorer\iexplore.exe
Allow Internet Explorer to communicate on these networks:
Private networks, such as my home or work network
Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)
What are the risks of allowing a program through a firewall?
Allow access
Cancel

Click ‘Allow access’, or IP Camera will not be able to function properly.
When you’re installing Internet Explorer plugin, you may also be prompted that if you want to allow changes to be made to your computer:


User Account Control
Do you want to allow the following program to make changes to this computer?
Program name: [1]SStreamVideo[1].cab
Verified publisher: SMAX Technology Co.,Ltd.
File origin: Downloaded from the Internet
Show details
Yes
No
Change when these notifications appear

Click ‘Yes’ to allow changes.

After ActiveX plugin is installed, you should be able to see the video stream from camera.

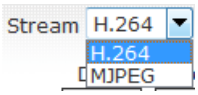
NOTE:

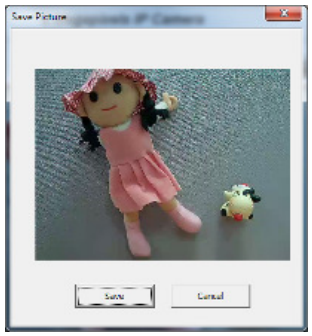
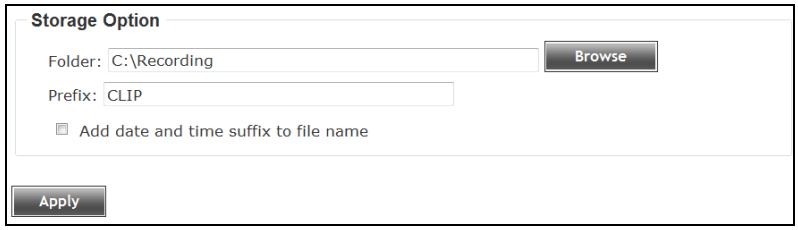
If this is the first time you use this IP Camera, you can refer to chapter 2.4 for instructions on Setup Wizard, which will guide you to complete the software setup of your new IP Camera.

2.3 Viewing Live Video

After ActiveX control is installed, you can view IP camera's video by web browser. Just connect to IP camera by web browser and login, then you can see live video from IP camera:

There are various controls on web page, here are descriptions of every control item:

Item	Description
'Home' button	This button is visible in all setup pages of IP camera, and you can go back to live video view by clicking this button when you're in other page.
Stream 	Select video stream type: H.264 or MJPEG. H.264 required less network bandwidth and this will help when network connection is slow.
Digital Output (ON / OFF)	Switch digital output interface on or off.
Client Settings	Open 'Client Setting' menu.
Configuration	Open 'Configuration' menu.
Language	Open language menu, you can switch web interface to other language. Available languages: English, Simplified Chinese, Traditional Chinese and Japanese
Original size / Fit screen	Switches live image view between original size (full size: 3M pixels) and fit screen (smaller size). If you want to see video in detail, switch to original

/	size. If your computer monitor's resolution is not enough and you want to see full image view, switch to fit screen and image size will adjust automatically.
'Connect' button	Start live video view.
'Disconnect' button	Stop live video view.
'Snapshot' button	Take a snapshot or camera video and save image file on your computer. When you click this button, a new window will appear:  Click 'Save' button when you see the image you wish to save, and you'll be prompted to indicate the folder on your computer to save image file. If you changed your mind and don't want to save image file, click 'Cancel'.
'Start Video Record' button	Click this button to record video and save video file on your computer. The image is saved in folder 'C://Recording' in default. It can be changed in Client Setting→Storage Option. 

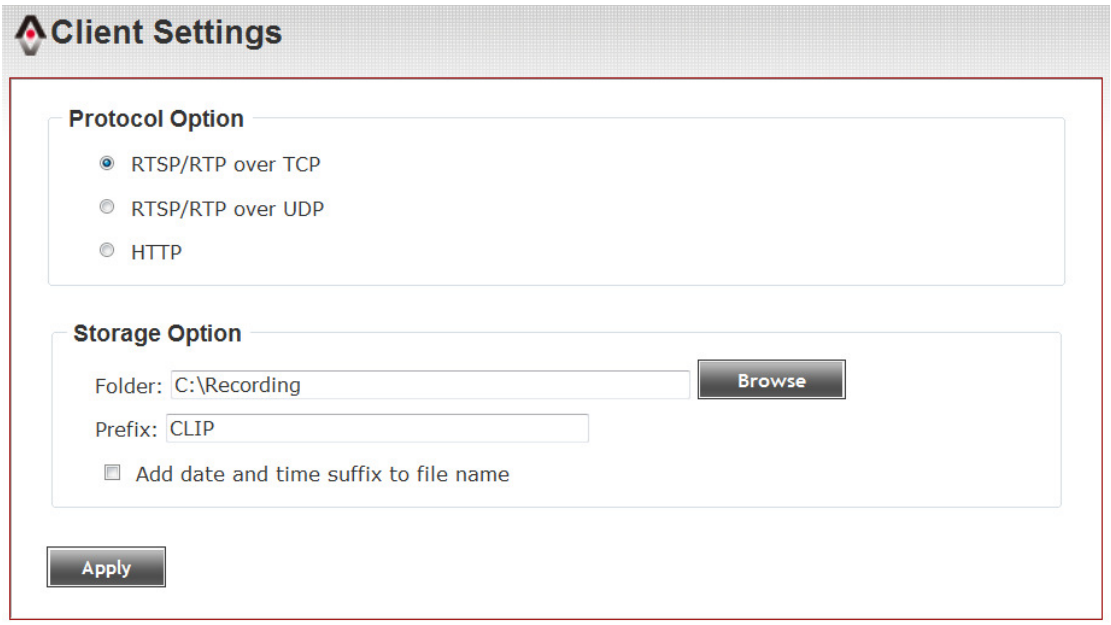
'Enable Digital Zoom' button	This function will enlarge video view digitally from 1X to 10X. Move the bar up to see objects in screen in detail. The blue square in the small screen at the left top side high lights the zoom in range. *Please note: that digital zoom uses computer algorithm to enlarge the video and some details may lost. If you need to focus on detail of specific objects in video view, please use optical zoom ring on lens set of IP camera.*
Enable / Disable mute button /	When mute is enabled ( ), you will not hear the voice from IP camera; If you want to hear voice from IP camera, click this button to disable mute ( ). You can drag the slide bar ( ) beside enable/disable mute button to adjust audio playback volume.
Start / Stop talk Button /	Start or stop playing your voice through IP camera's audio output. When talk is stopped, people at IP camera will not hear you. Please note: you need a microphone connected to your computer, and computer's mixer setting must enable microphone recording, or nothing will be outputted by IP camera.

2.4 Client Settings

In ‘Client Settings’ menu, you configure basic IP camera settings like data transfer protocol and data storage folder.

To access ‘Client Settings’ menu, click ‘Client Settings’ button on the left.

The following screen will appear:



Here are the descriptions of every setup item:

Item	Description
RTSP/RTP over TCP	Select this option to use RTSP (Real-Time Streaming Protocol) to transfer video data over TCP.
RTSP/RTP over UDP	Select this option to use RTSP (Real-Time Streaming Protocol) to transfer video data over UDP.
HTTP	Select this option to use HTTP (Hyper-Text Transfer Protocol) to transfer video data. If you don't know which one you should use, select 'RTSP/RTP over TCP'.
Folder	Select a folder on your computer to save recorded video. Click 'Browse' button and you'll be prompted to select a folder.
Prefix	When saving video files, the characters you typed in 'Prefix' field will be used as leading characters of video file's name. For example, the default setting of 'Prefix' is 'CLIP', and video file's named will be 'CLIPxxxx', where xxxx is a 4-digit serial number.
Add date and time suffix to file name	Check this box to add data and time to the ending part of video file's filename, so you can see the date and time the video file is created directly from its filename.

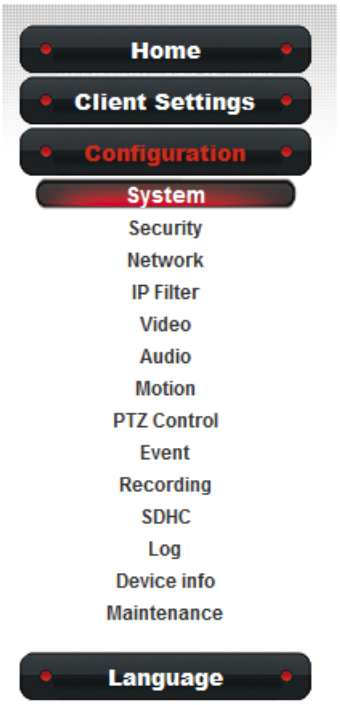
When you finish with above settings, click 'Apply' button to save changes.

Chapter III Advanced Configuration

If you wish to configure IP camera's settings, you can access IP camera's 'Configuration' menu, which provides various kinds of system setting.

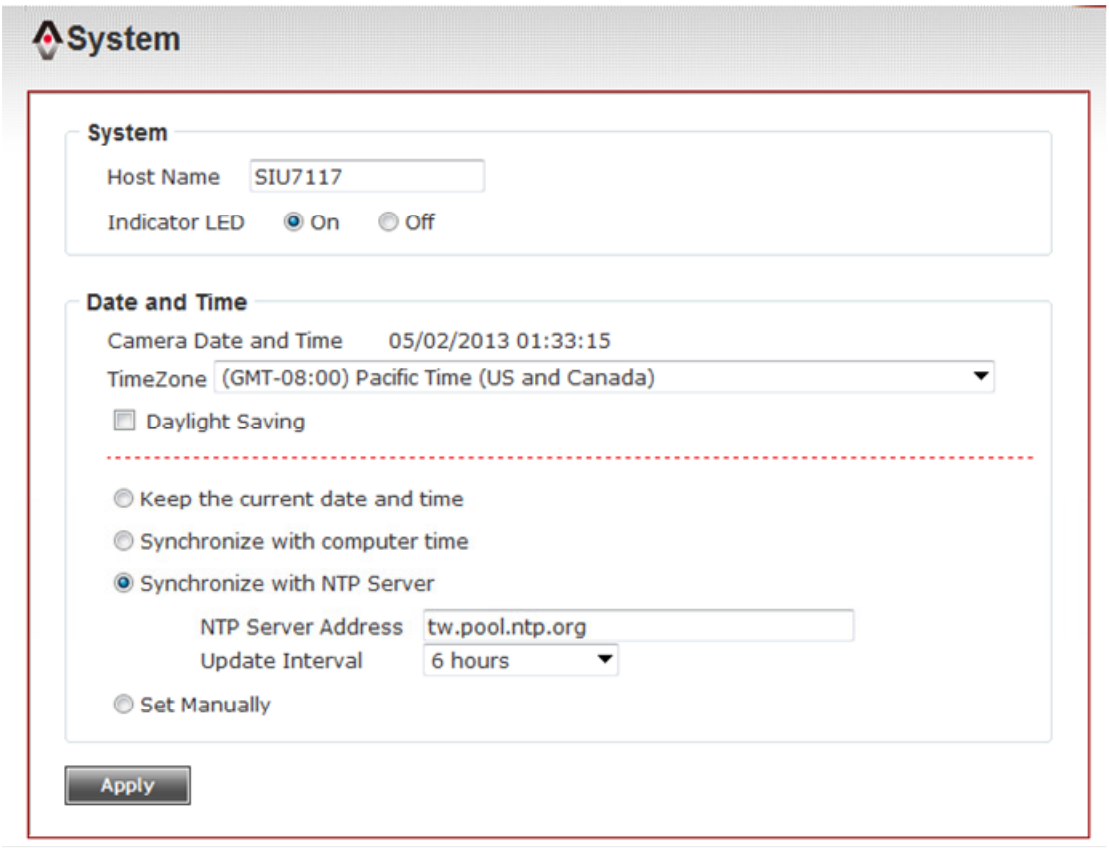
To access configuration menu, click 'Configuration' button on the left.

The 'Configuration' submenu will appear, please pick a setup item you wish to configure.



3-1 System

In this menu, you can configure basic IP camera settings like hostname and time.



Here are the descriptions of every setup item:

Item	Description
Host Name	Input the IP camera's hostname here, it can be any meaningful words or characters that will help you to identify this IP camera. You can use IP camera's installation location as host name, and this will help you to identify IP camera when you have many IP cameras installed.
Indicator LED	The LED lights located at the back of IP camera is switched on by default. But, if you don't want other people to know the status of this IP camera (so they will know this IP camera is operating etc.), you can select 'Off' and LED lights will be switched off.

TimeZone	Select the time zone of residence from dropdown menu to keep correct date and time.
Daylight Saving	If the area you live uses daylight saving, check this box; otherwise do not check this box to keep time correct.
Keep the current date and time	Select this option and date / time setting will not be changed when you click 'Apply' in the page. You can check 'Camera Date and Time' item in this page to know IP camera's current date and time setting.
Synchronize with computer time	Select this item and IP camera will use your computer's time as its time.
Synchronize with NTP Server	Select this item and IP camera will keep its date and time setting synchronized with specified time server (NTP server). Please input NTP server's IP address or host name in 'NTP Server Address' field, and select time update interval from 'Update Interval' dropdown menu. *Please note that if this IP camera can't access Internet, you must have a time server on local area network, or set the time manually.*
Set Manually	Set IP camera's date and time manually. Please set current date and time by 'Date' and 'Time' dropdown menu.

When you finish with above settings, click 'Apply' button to save changes.

3-2 Security

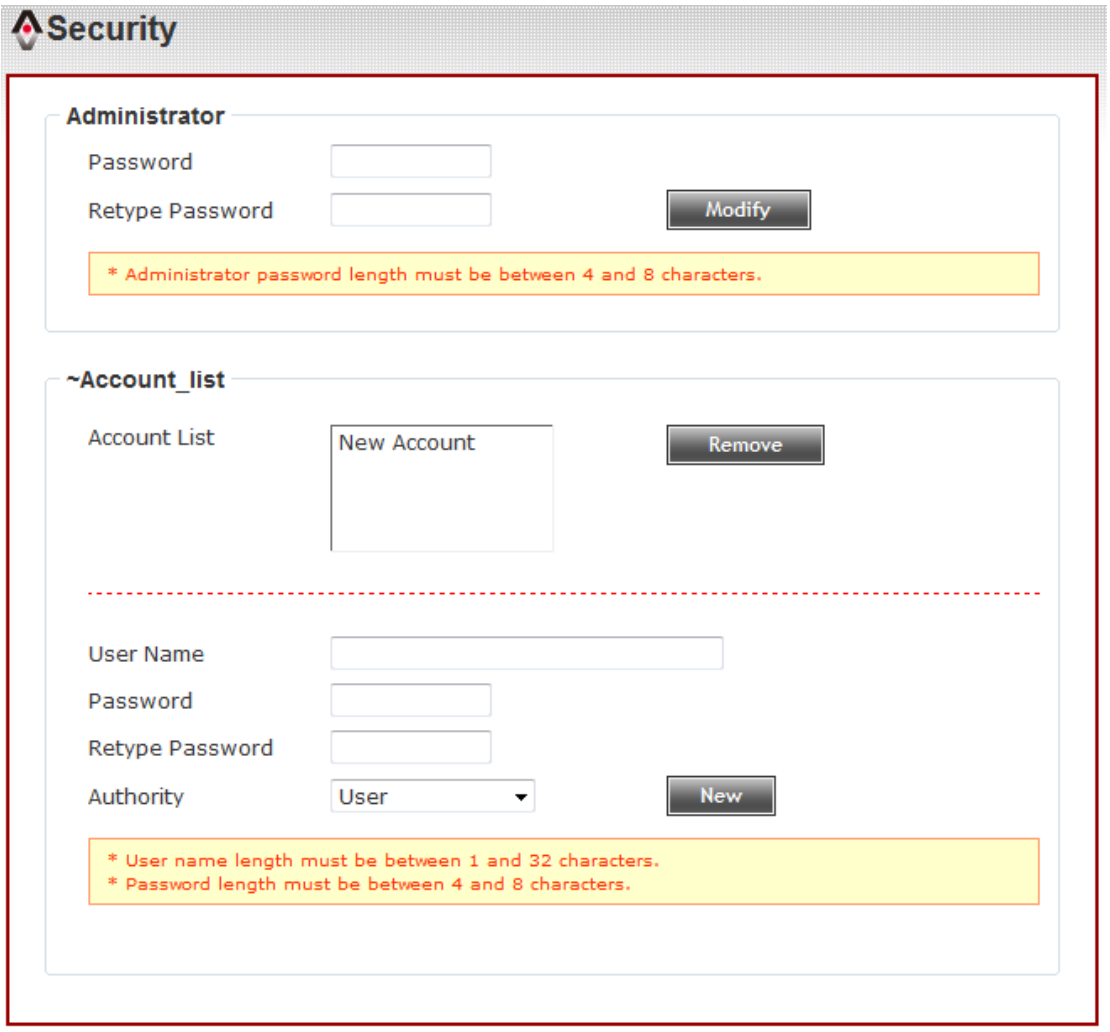
In this menu, you can configure IP camera's login account.
There are three kinds of account:

- Administrator (Can view IP camera's video and make changes of camera setting)

- User (Can view IP camera's video and see log only)

- Guest (Can view IP camera's video only)

There can be multiple users, but only one administrator is allowed, and you can't change administrator's user name (it will always be 'administrator').



Here are the descriptions of every setup item:

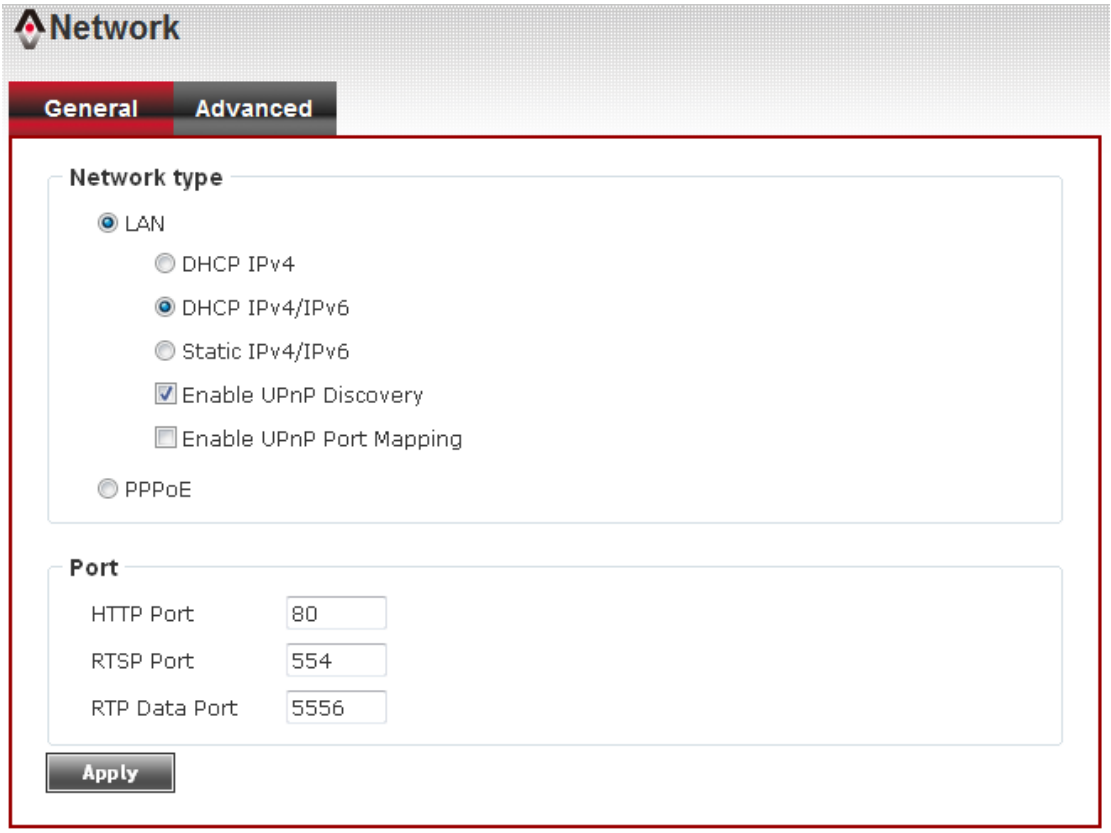
Item	Description
Password / Retype Password **(Administrator)**	Input administrator's new password in both 'Password' and 'Retype Password' field, and click 'Modify' button to change administrator's password. *Please note: Don't forget administrator's password! Or you'll need to reset IP camera's all settings to get administrator's password recovered.*
Account List	Here lists all users existed in IP camera. If you want to remove one user, click it in the list, and then click 'Remove' button. *If no user is existed, 'New Account' message will be shown here.*
User Name	Input new user's username here. User name must be greater than 1 character and less than 32 characters.
Password / Retype Password	Input this user's password in both 'Password' and 'Retype Password' field.
Authority	To define this user's access privilege, select 'User' or 'Guest' in dropdown menu. When you finish inputting new user's information, click 'New' button to create a new user.

3-3 Network

In this menu, you can configure IP camera's network setting.

3-3-1 'General' setup page

Setup IP address for this IP camera. This IP camera supports both IPv4 and IPv6 IP address.

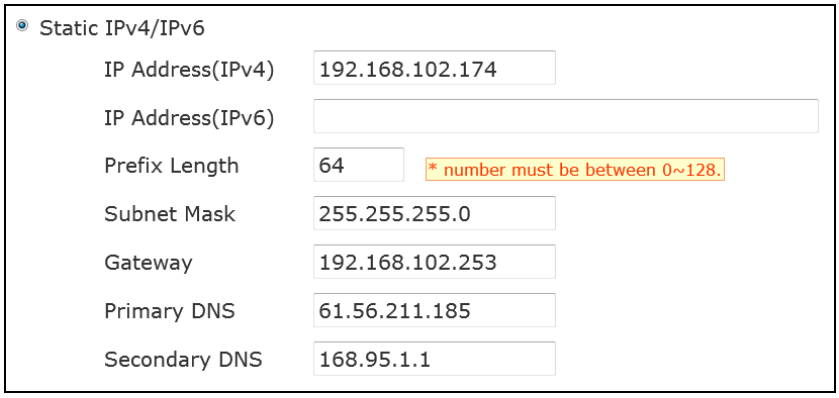


Here are the descriptions of every setup item:

Item	Description
LAN	Select this option to assign an IP address to LAN port (or obtain an address from DHCP server automatically). Available options are: DHCP IPv4: Obtain an IPv4 IP address from DHCP server

on LAN automatically.
DHCP IPv4 / IPv6: Obtain both IPv4 and IPv6 address from DHCP server on LAN automatically.

Static IPv4 / IPv6: Assign an IPv4 / IPv6 address to IP camera manually. If you don't have a DHCP server on your local area network, you must use this option to specify an IP address.



IP Address(IPv4): Input IPv4 IP address*
IP Address(IPv6): Input IPv6 IP address*
Prefix Length: Input IPv6 IP address' prefix length (0-128)
Subnet Mask: Input subnet mask
Gateway: Input gateway address
Primary DNS: Input DNS server's IP address
Secondary DNS: Input backup DNS server's IP address, you can leave this field blank.

* You can leave this field blank, if you only wish to use IPv4 or IPv6 IP address.

Enable UPnP Discovery: Check this b ox to enable other devices on network to discover the presence of this IP camera by UPnP. It's recommended to enable this function.

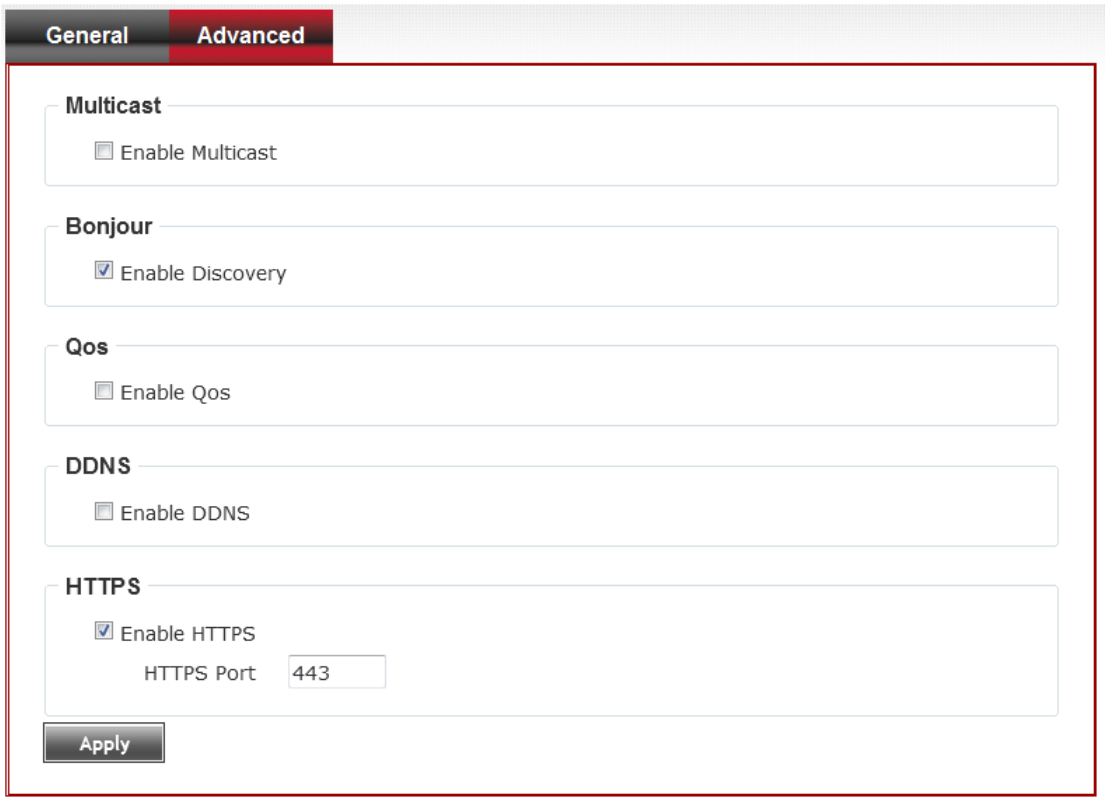
Enable UPnP Port Mapping: When UPnP is enabled, check this box to enable UPnP's port mapping.

PPPoE	Select this option to use PPPoE to connect to network. You have to input PPPoE username and password assigned by network operator to get connected.
HTTP Port	Input IP camera's web connection port number here. When this port number is changed, you need to change web browser's port number you used to connect to IP camera. For example, IP camera's IP address is 192.168.2.3, and if you changed HTTP port number to 82, please input 'http://192.168.2.3:82' in web browser's address bar to access IP camera's web configuration interface.
RTSP Port	Input RTSP port number. When this port number changes, you must change corresponding settings in external network devices (NVR or CMS software) so they can receive this IP camera's video.
RTP Data Port	Input RTP data port number here.

When you finish with above settings, click 'Apply' button to save changes.

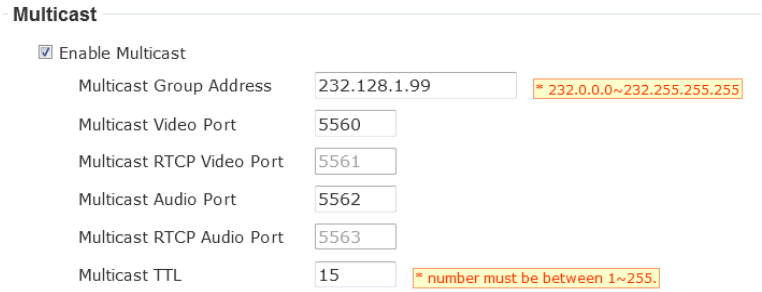
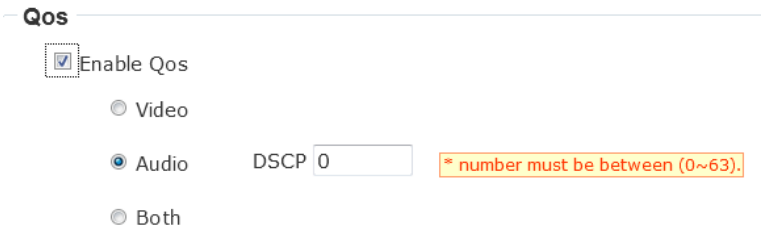
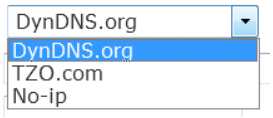
3-3-2 'Advanced' setup page

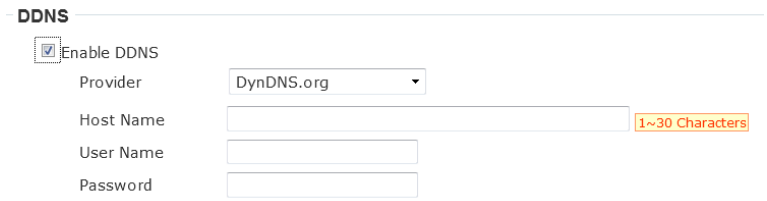
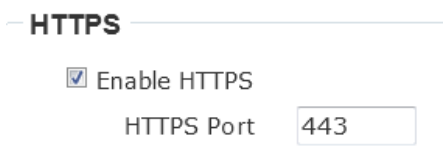
You can setup advanced network settings in this page. This page is intended for advanced settings only, and this IP camera will work fine even you don't make any changes to this page.



Here are the descriptions of every setup item:

Item	Description
Multicast	Enable video multicast: Multicast Group Address: Input multicast group address here, must be an address between 232.0.0.0 to 232.255.255.255. Multicast video port: Input port number for video multicast here. Multicast RCTP video port: Input port number for RCTP video here. Multicast audio port: Input port number for audio

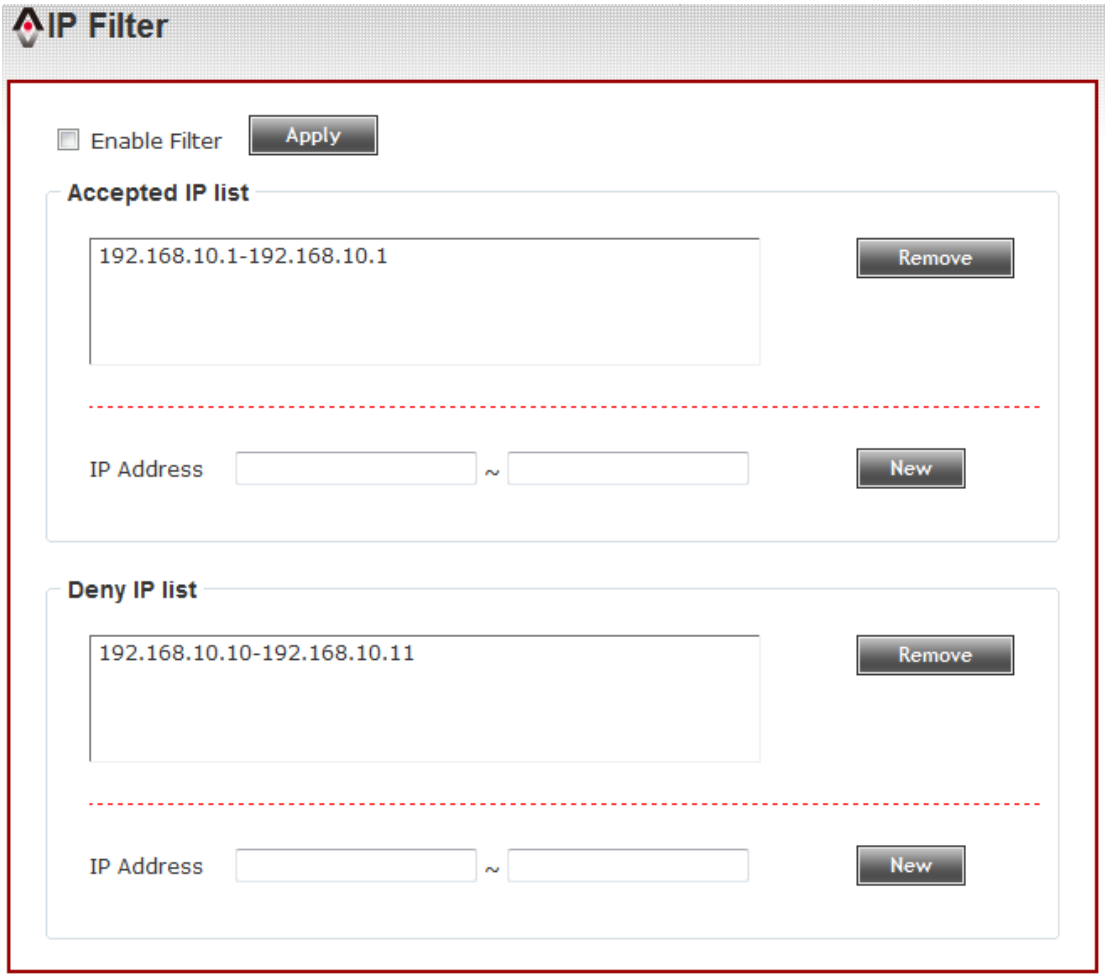
	here. Multicast RCTP audio port: Input port number for RCTP audio here. Multicast TTL: Input TTL value for multicast here. 
Bonjour	If you're using Mac OS and you have Bonjour installed, you can use it to discover this IP camera.
QoS	Enable QoS to improve the data transfer priority of this IP camera (Your local area network must support QoS). You can select Video / Audio's QoS DSCP value (0 to 63), or both video and audio. 
DDNS 	Enable DDNS support if your ISP assigns dynamic IP address to you. You must register a dynamic IP service first. Currently this IP camera supports DynDNS, TZO and No-ip dynamic IP service. Provider: Select dynamic IP service provider. Host Name: Input the host name you obtained from dynamic IP service provider. User name: Input user name used to login dynamic IP service provider. Password: Input the password used to login dynamic IP service provider.

	
HTTPS	Check ‘Enable HTTPS’ box to enable HTTPS channel to encrypt transferred data. You can also define HTTPS port number in ‘HTTPS Port’ field if you don’t want to use default value ‘443’. 

When you finish, click ‘Apply’ to save changes.

3-4 IP Filter

When this IP camera is directly connected to Internet and not protected by firewall, this function acts like a mini built-in firewall to protect the safety of this IP camera and avoid attacks from hackers.



Here are the descriptions of every setup item:

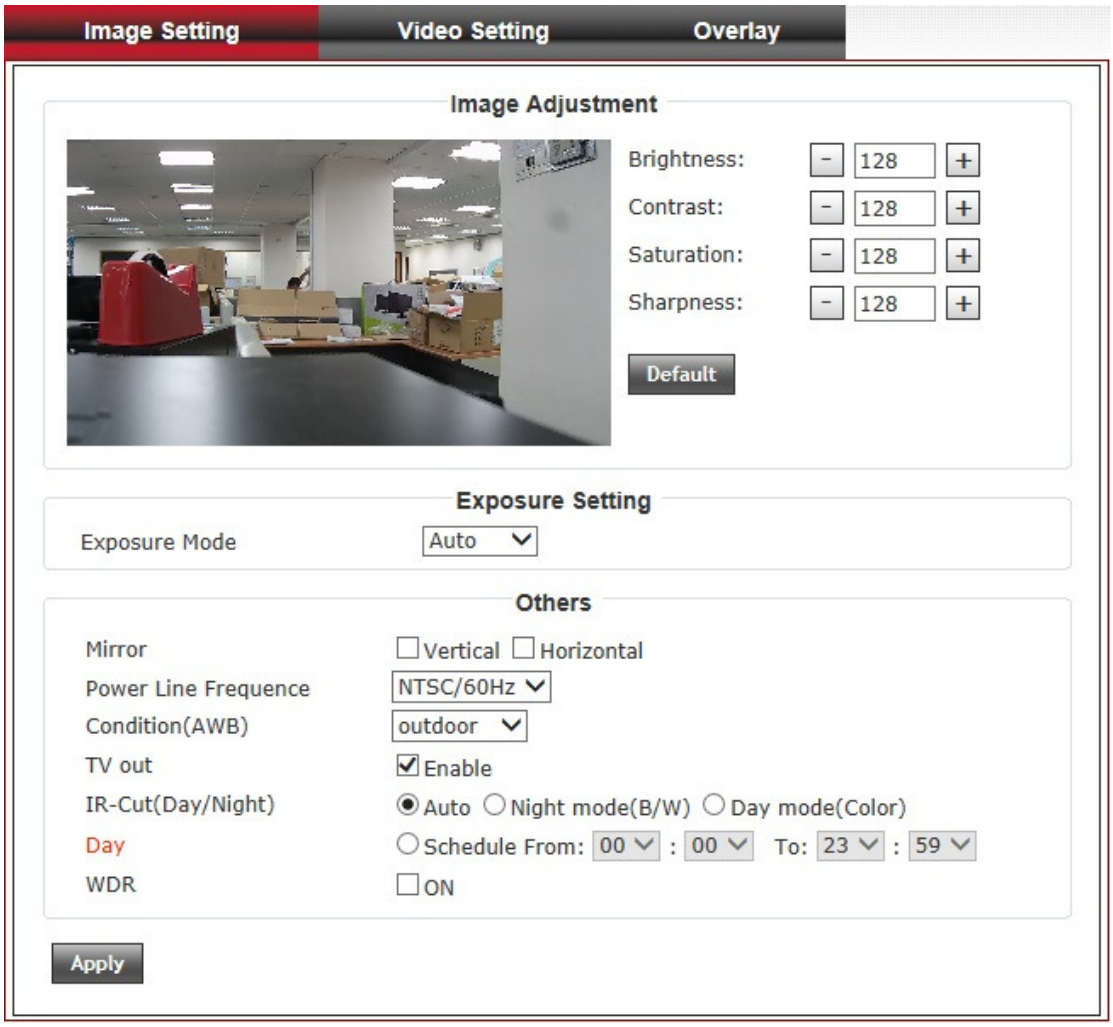
Item	Description
Enable Filter	Check this box to enable IP address filter, uncheck this Box to disable this function.
Accepted IP list	Here lists all IP address that can build connections to this IP camera. If you want to remove a set of IP address from the list, click on the IP address and click 'Remove' button.
IP Address (Accepted IP list)	Input the starting and ending IP address of IP address you wish to accept connections here. IP

	camera will only accept connections established from these IP address. If you want to specify one IP address only, input the same IP address in both field. Click 'New' button to add IP address into accepted IP list.
Deny IP list	Here lists all IP address that cannot build connections to this IP camera. If you want to remove a set of IP address from the list, click on the IP address and click 'Remove' button.
IP Address (Accepted IP list)	Input the starting and ending IP address of IP address you wish to deny connections here. IP camera will deny connections established from these IP address. If you want to specify one IP address only, input the same IP address in both field. Click 'New' button to add IP address into deny IP list.

When you finish with above settings, click 'Apply' button to save changes.

3-5 Video

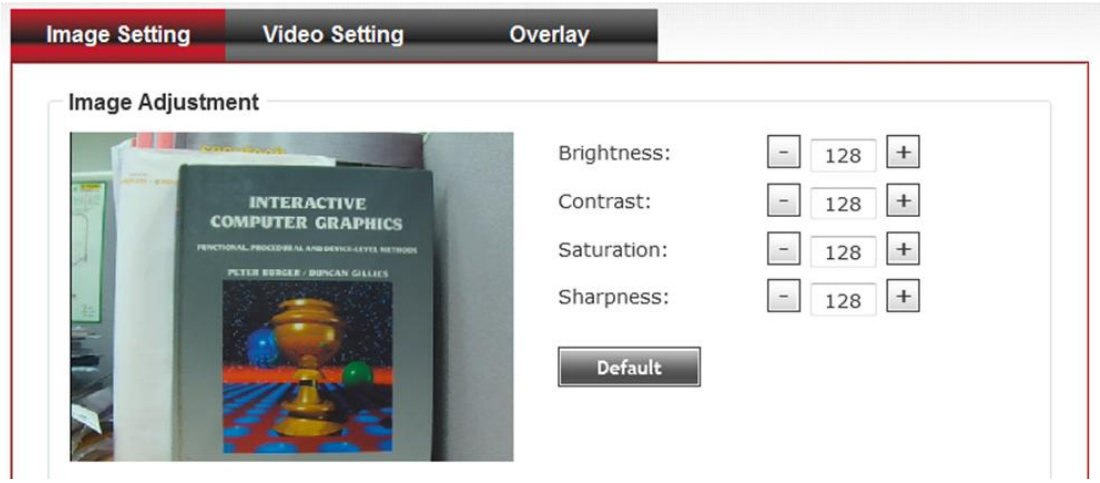
You can adjust the image of the IP camera in this menu.



There are 3 sub-menus in this menu: Image Setting, Video Setting, and Overlay, which can be accessed by tabs on the top:

3-5-1 Image Setting

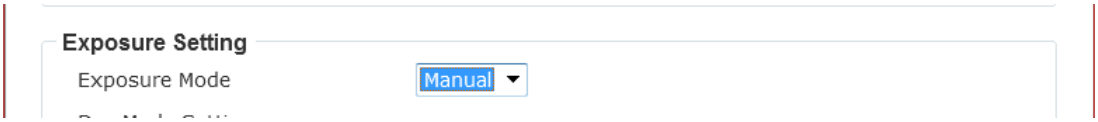
You can adjust the image parameters in this page.



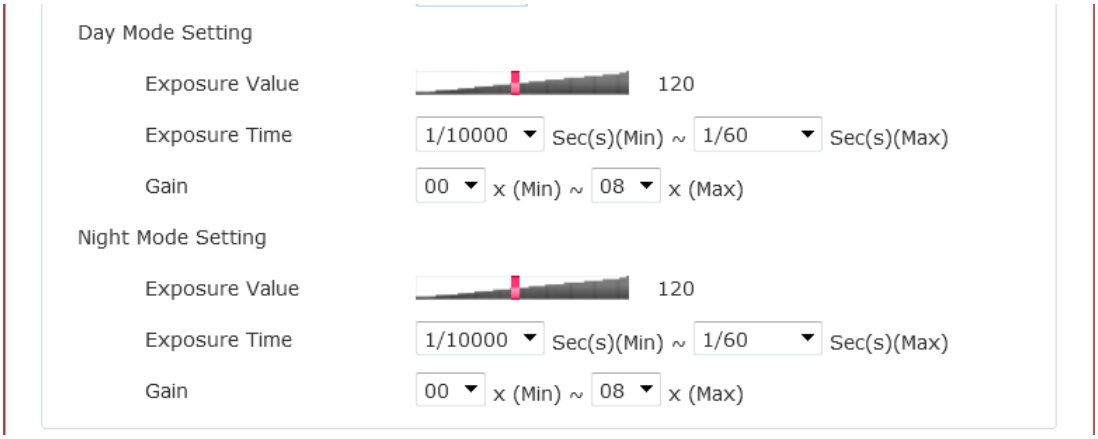
Here are the descriptions of every setup item:

Item	Description
Brightness / Contrast / Saturation / Sharpness	Control the image parameters. Click ‘ - ' to decrease value, or click ‘ + ‘ to increase value. You can also input the value in the field directly.
Default	Set all above values to default value ‘128’.

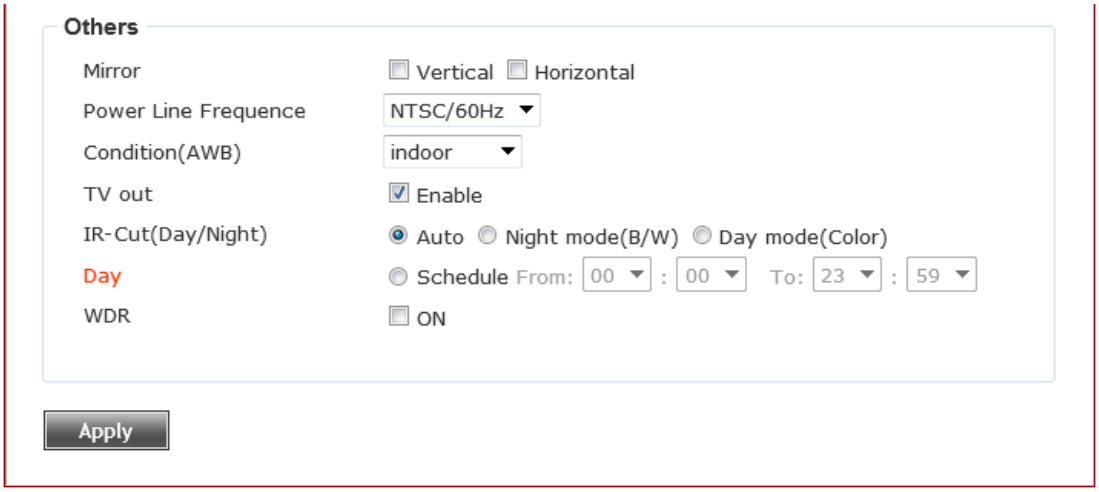
Exposure Setting



This camera is able to adjust the exposure setting automatically by default. In this page, it allows user to define the exposure setting manually.



Set up the values of exposure value, exposure time and gain to create a profile and click “Apply” to enable it.



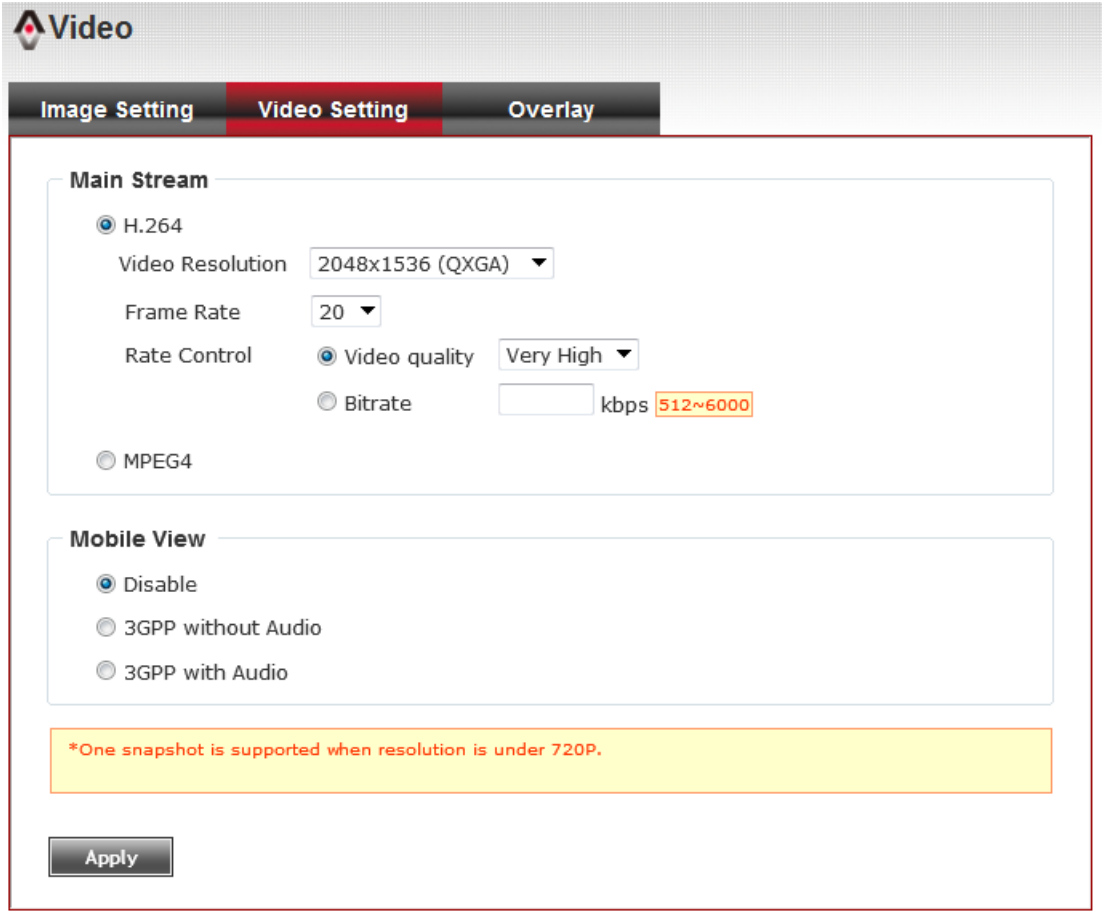
Item	Description
Mirror	Check ‘Vertical’ or ‘Horizontal’ box to flip the image vertically or horizontally, this will help to correct the orientation of image when IP camera is hanged bottom-up by camera holder. *You can click both ‘Vertical’ and ‘Horizontal’ box at the same time.*
Power Line Frequency	Select the frequency of power line of the place you’re using this IP camera. This will help to reduce the flicker of certain lights in the image.
Condition (AWB)	Select the condition that you’ll be using this IP camera from dropdown menu. - outdoor: Outdoor environment using. - indoor: Indoor environment using. - B/W: You’ll be using this IP camera in dark places where lights are insufficient. Tungsten: Low color temperature environment using.
TV Out	Click “Enable” box to enable its “VIDEO OUT” function for connections and video sending to TV monitors or DVRs.
IR-cut (Day/Night)	An IR-Cut filter is built in this IP camera to reduce the effect of IR lights (which will change the color of image and makes it looks different than what you see through your eye), and most of IR lights are coming from

	sunlight. You can select the behavior or IR-Cut filter: - Auto: IR filter will act automatically. If you don't know if you should use IR filter, select this option. - Always ON: IR filter is always on. - Always OFF: IR filter is always off.
Day	IR-Cut filter will only be switched on when there's sunlight. You can define the starting and ending time when IR-Cut filter should be switched on by select 'Schedule' and define starting and ending time by dropdown menu.
WDR	Wide dynamic range: Enable it when the object positioned against strong back lighting. The image is able to get more details.

When you finish with above settings, click 'Apply' button to save changes.

3-5-2 Video Setting

You can adjust the video transfer parameters in this page.



Here are the descriptions of every setup item:

Item	Description
H.264 /MPEG4	Select the compression of main stream: H.264 / MPEG4.
Video Resolution	Select video resolution. - H.264: 2048x1536 (QXGA) / 1920x1080 (1080p) 1280x960 (960p) / 1280x720 (720p) 720x480 (D1) / 640x480 (VGA) 320x240 (QVGA) - MPEG4: 1920x1080 (1080p) / 1280x960 (960p) 1280x720 (720p) / 720x480 (D1) 640x480 (VGA) / 320x240 (QVGA) MJPEG: 1280x720 (720p) / 720x480 (D1) 640x480 (VGA) / 320x240 (QVGA)

	Please note that some video resolution is not available when video encoder is 'MPEG4'. When network speed is insufficient, select a lower video resolution will help.
Frame Rate	Select video frame rate. Please note that some frame rate is not available when video encoder is 'H.264'. When network speed is insufficient, select a lower frame rate will help.
Rate Control	Select video bit rate. You can control bit rate by both 'Video quality' and 'Bitrate': - Video quality: There are 5 levels of video quality, select 'very high' to improve video quality but consumes more network bandwidth, and select 'very low' will decrease video quality and consumes less network bandwidth. - Bitrate: Input video's bit rate directly. It must an integer between 512 and 6000. Higher bit rate provides better video quality, but consumes more network bandwidth.
Mobile View	Checking the radio box to enable remote access when you need to remote access via mobile phone.

When you finish with above settings, click 'Apply' button to save changes.

Note:
MJPEG options are only available for portable devices like cell phone. The resolution is under 1280 x 720 (720P). The UI page will pop up when the resolution of H.264/MPEG4 is 720P or below like hereunder.

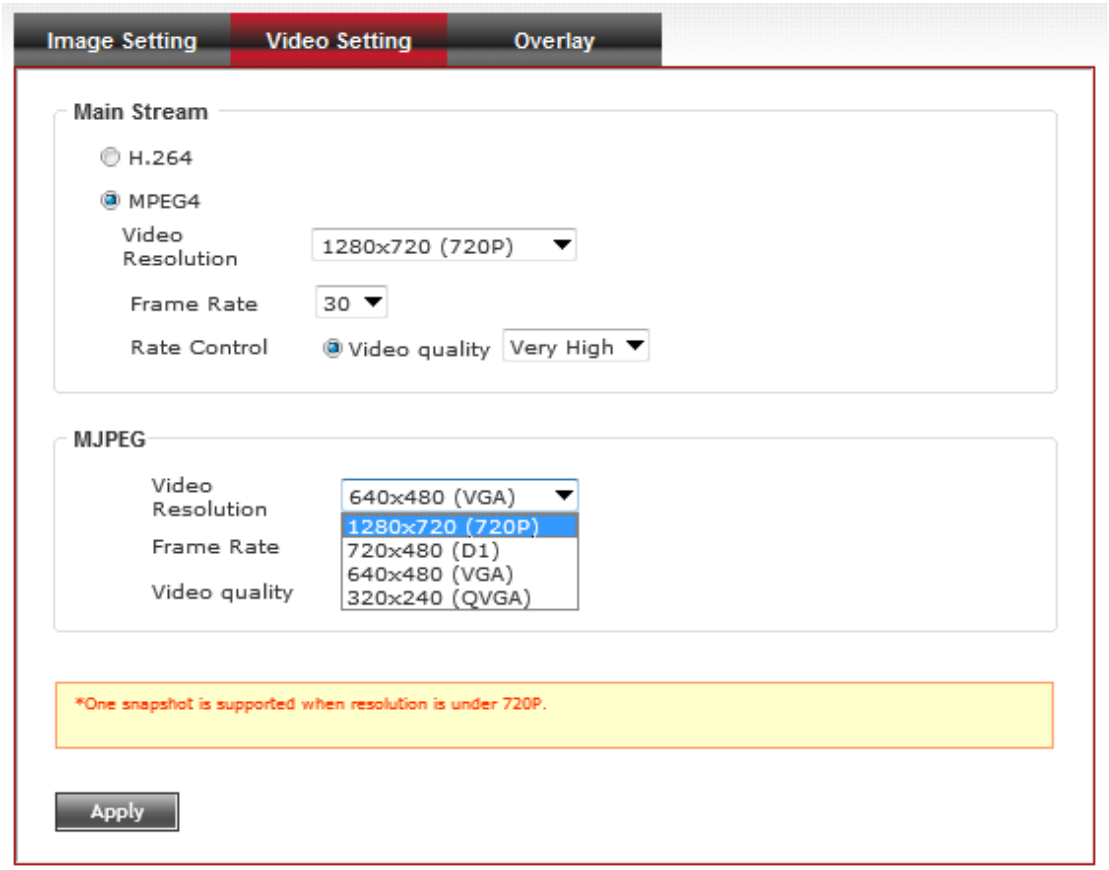
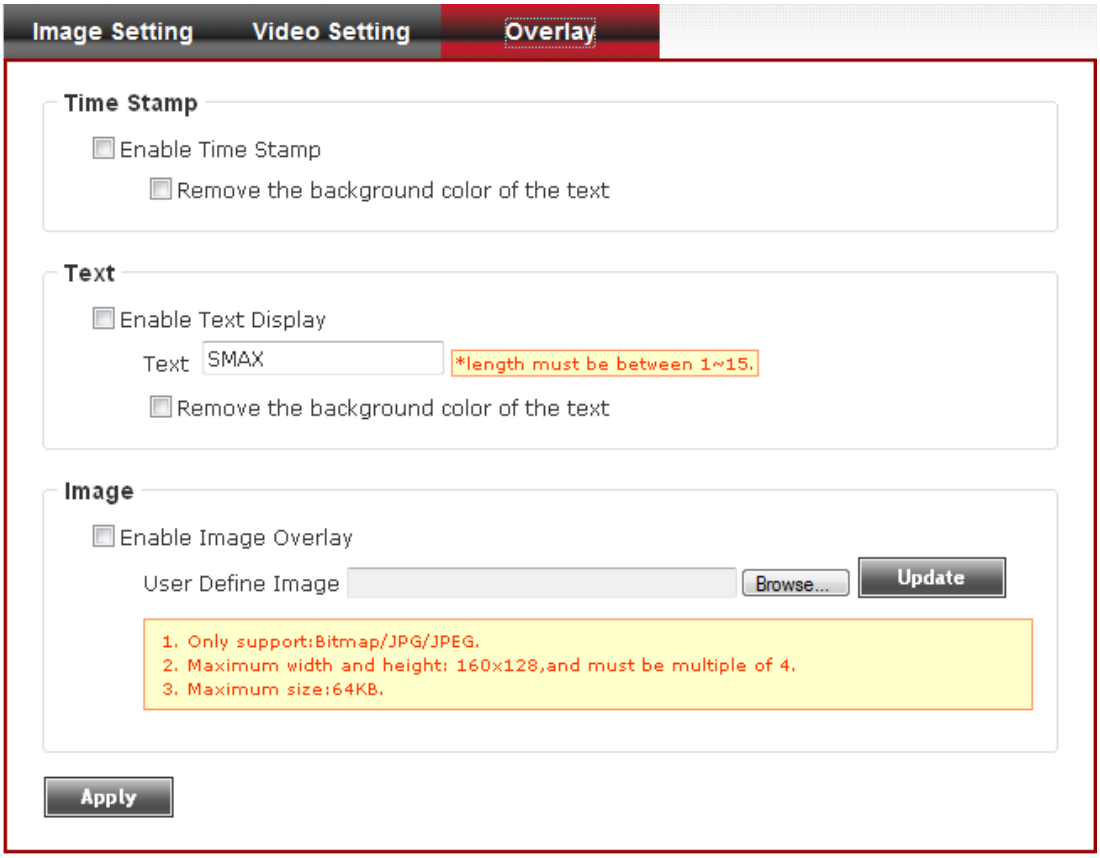


Image Setting
Video Setting
Overlay
Main Stream
H.264
MPEG4
Video Resolution
1280x720 (720P)
Frame Rate
30
Rate Control
Video quality
Very High
MJPEG
Video Resolution
640x480 (VGA)
1280x720 (720P)
720x480 (D1)
640x480 (VGA)
320x240 (QVGA)
Frame Rate
Video quality
*One snapshot is supported when resolution is under 720P.
Apply

3-5-3 Overlay Setting

You can adjust the video overlay parameters in this page.



Here are the descriptions of every setup item:

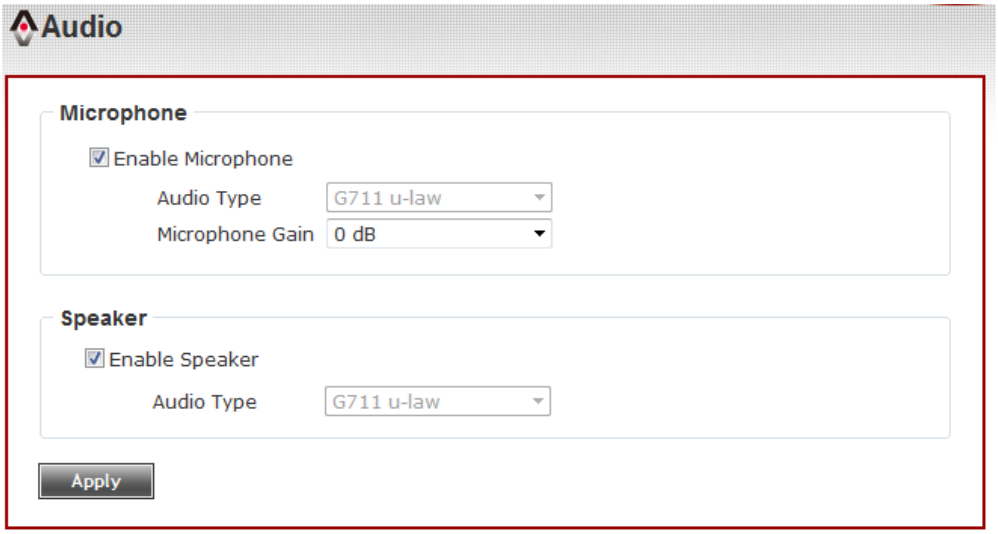
Item	Description
Enable Time Stamp	Check this box to enable overlaying time stamp on video.
Remove the background color of the text (for Time Stamp)	Check this box to remove time stamp's background color. You may find this will help the readability of time stamp text in some cases.
Enable Text Display	Check this box to display certain text on video, this will help when you need to identify certain IP camera when you have a lot of IP cameras. Please input the text in 'Text' field. You can input up to 15 characters.
Remove the background color of the text (Text)	Check this box to remove custom text's background color. You may find this will help the readability of text in some cases.

Enable Image Overlay	Check this box to overlay a specific image on video, so you can show certain text / picture on the video and help people to identify this IP camera. Click 'Browse' button to pick a picture on your computer, then click 'Update' button to use the picture. Please note that there are certain restrictions: - Select .bmp / .jpg / .jpeg image files only. - Image's resolution should be less than 160 x 128, and can be divided by 4. - Do not upload image files that size is greater than 64KB.

When you finish with above settings, click 'Apply' button to save changes.

3-6 Audio

You can adjust audio input / output parameters here.



Here are the descriptions of every setup item:

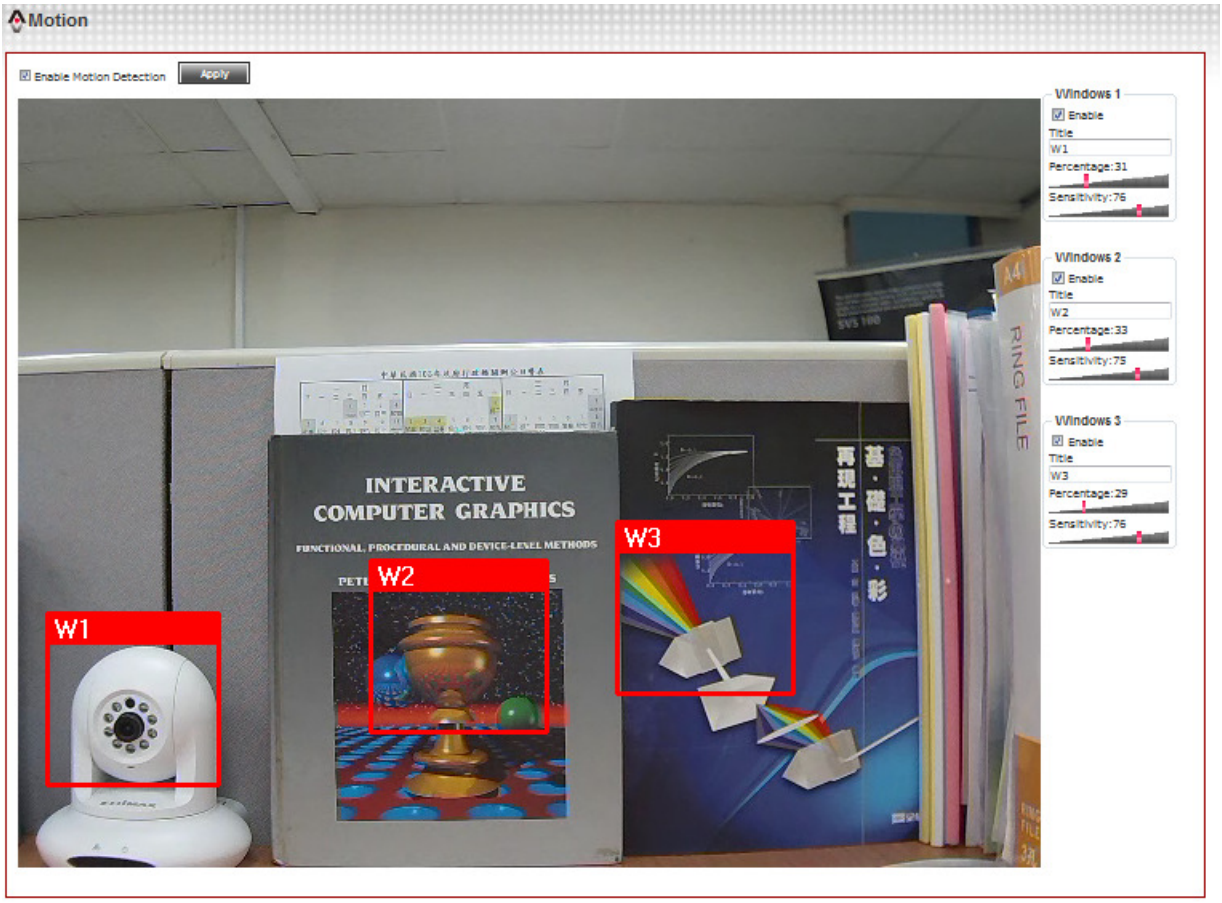
Item	Description
Enable Microphone	Check this box to enable microphone. If you don't want to hear voice from IP camera, you can uncheck this box to disable it.
Audio Type (Microphone)	The format is fixed as G.711
Microphone Gain	If the voice received by microphone is too loud or silent, you can use this function to improve voice volume, so you can hear voice from IP camera more clearly. - Select -2 or -1 dB to correct the voice that is too loud; - Select 0 dB and IP camera will do nothing on the voice; - Select +2 dB to +26 dB to amplify the voice.
Enable Speaker (Speaker)	Check this box to enable speaker. If you don't want people at IP camera to hear you, you can uncheck this box to disable it.
Audio Type (Speaker)	The format is fixed as G.711

When you finish with above settings, click 'Apply' button to save changes.

3-7 Motion

This IP camera is capable to detect object's motion, so IP camera will only record when there's motion and save disk storage space.

Motion detection is performed by examine the movement of objects in rectangular motion detection area. You can define up to 3 motion detection areas.



Here are the descriptions of every setup item:

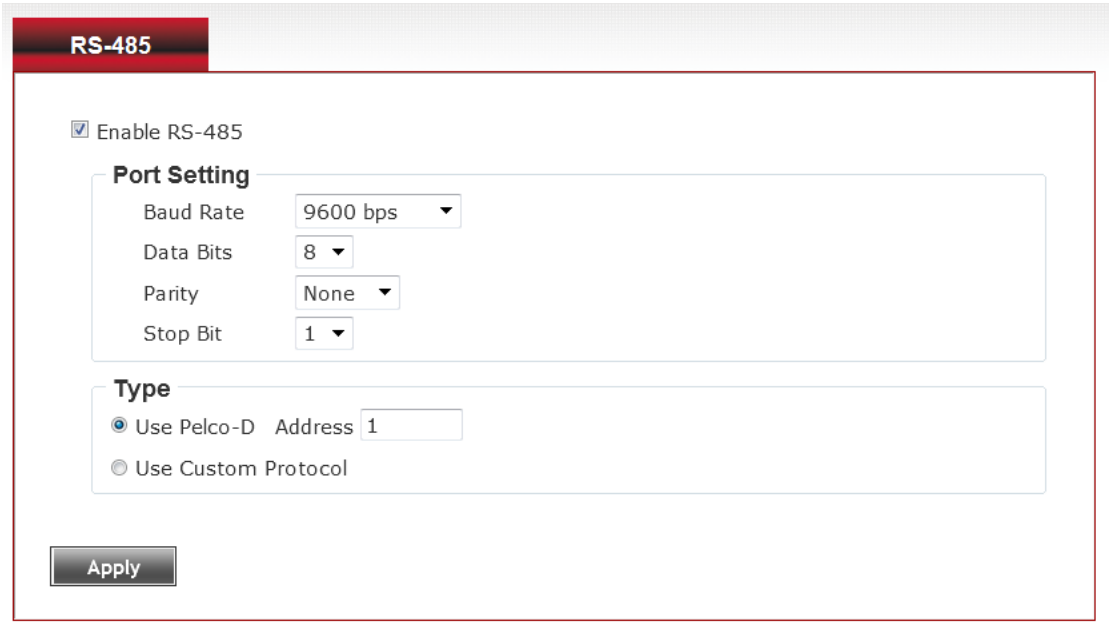
Item	Description
Enable Motion Detection	Check this box to enable motion detection.
Enable (Window 1 to Window 3)	Check this box to enable this motion detection window. You can select window 1 to 3 to enable up to 3 motion detection windows. When a motion detection window is enabled, a rectangular will appear on camera's view, with its title on the top. - To move / resize a motion detection window:

	- Move: Use the mouse to drag the title text. - Resize: Use the mouse the drag the four corners (upper-left/right, lower-left/right) to resize it. If you only want to adjust width or height, drag the four sidebars (top, bottom, left, and right).
Title (Window 1 to Window 3)	Input characters in title field to change motion detection area's title text so you can identify it. Please note that you have to click 'Apply' button and the text will change.
Percentage	Select the percentage of pixel change that will trigger motion detection alert. Select a lower percentage so you can detect tiny changes in motion detection area.
Sensitivity	Select the sensitivity level that will trigger motion detection alert. Select a higher sensitivity so you can detect tiny changes in motion detection area. It will show blue bar when window are detecting moving object through the window range.

When you finish with above settings, click 'Apply' button to save changes.
Once the window detects motion, one blue flexible bar will appear at the bottom edge. One video file will be saving at this moment if the ftp server was enabled.

3-8 PTZ Control

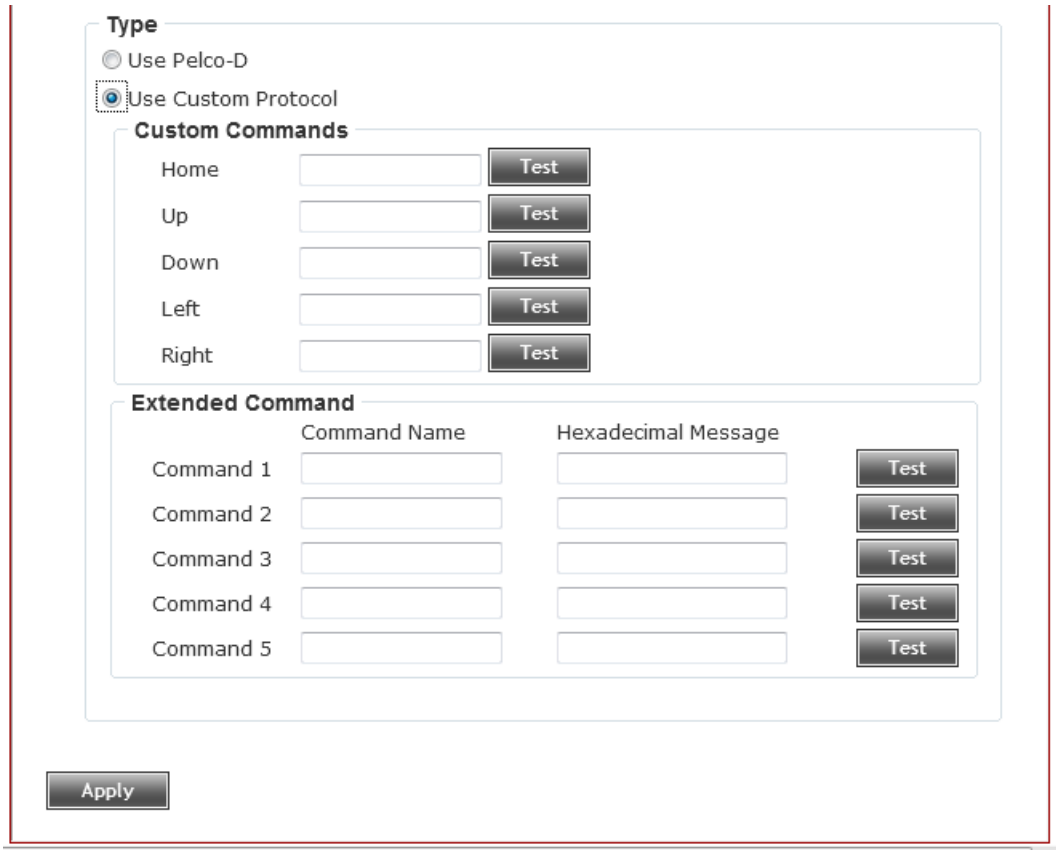
If you mount the IP camera on pan-tilt camera cradles that support pan-tilt control via RS-485 connection, you can use this function to control pan-tilt camera cradle so you can control the orientation of IP camera from remote place.



Here are the descriptions of every setup item:

Item	Description
Enable RS-485	Check this box to enable RS-485 functionality.
Use Pelco-D Address	Select this option and RS-485 interface will output pan-tile control signal in Pelco-D format. This format is widely accepted by most of pan-tilt camera cradles. You have also input pan-tilt camera cradle's address code in 'Address' field. This code must be identical to pan-tilt camera cradle's address code.
Use Custom Protocol	When the pan-tilt camera cradle does not support Pelco-D protocol, you can define a protocol's detail by this function.

When you finish with above settings, click 'Apply' button to save changes.

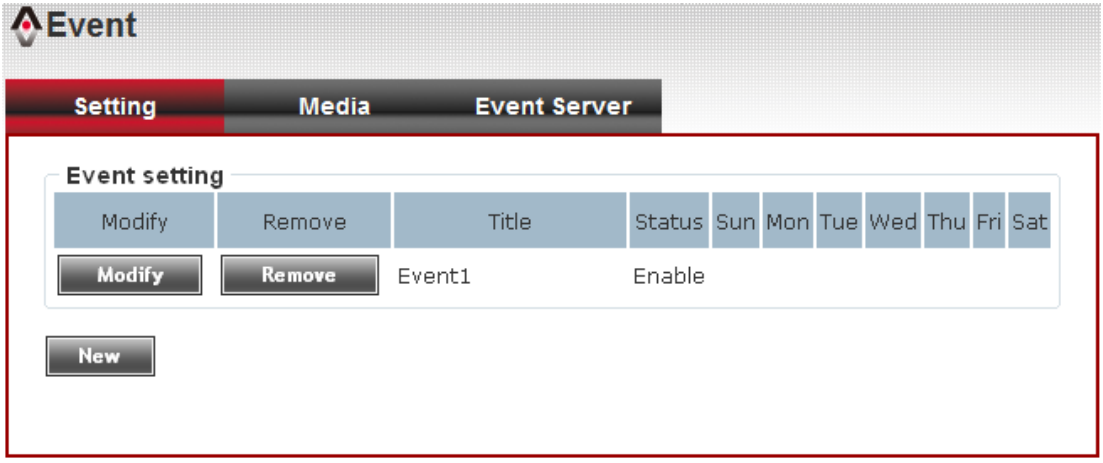


Please refer to pan-tilt camera cradle's user manual to define the protocol.

Port Setting	- Baud Rate: Select data baud rate of RS-485 interface that pan-tilt camera cradle will accept. When the length of RS-485 connection is very long (longer than 200M), it's not recommended to use high speed connection (greater than 2400bps). - Data Bits: Select data bits of RS-485 connection. - Parity: Select parity bit: odd, even, or space. - Stop Bit: Select stop bit: 1 or 2.
Customer Commands	- Home/Up/Down/Left/Right: Input the command string used to move pan-tilt camera cradle to home or up/down/left/right position. You can click 'Test' button to send command string for testing.
Extended Command 1 ~ 5	You can define extra pan-tilt camera cradle control strings here by giving it a name (Command Name) and command string (Hexadecimal Message). You can also click 'Test' button to send command string for testing.

3-9 Event

When there's an event, you can use this setup page to define what IP camera should do, like send an Email or trigger digital output to activate external alarm.



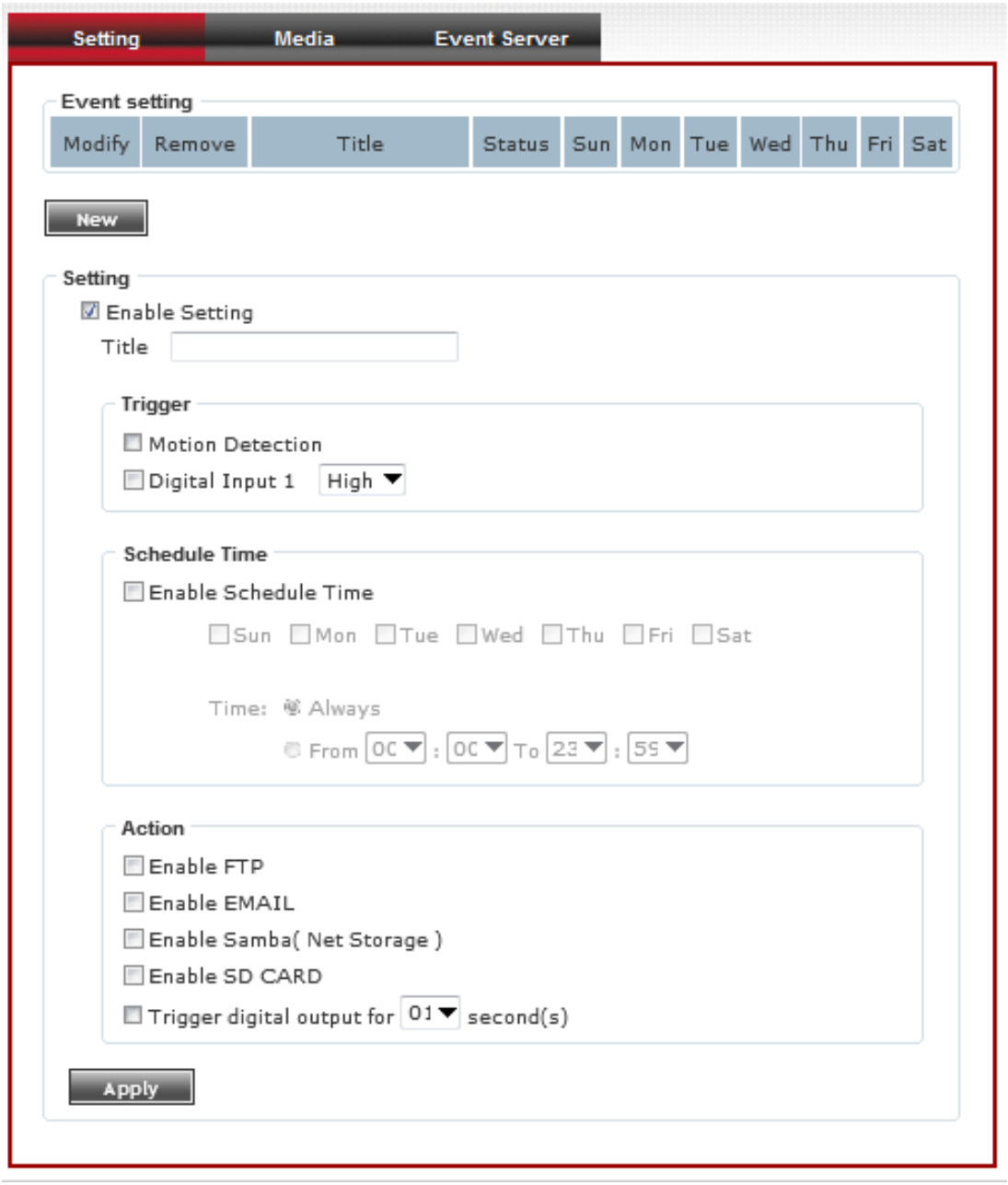
There are three setup pages:

1. Setting: Define a new event and manage events.
2. Media: Define what kind of media file should be saved on designate media.
3. Event Server: Define the details of remote server.

Please refer to following chapters for detailed instructions.

3-9-1 Settings

This page lists all existing events. You can click ‘Modify’ button to edit an existing event, or ‘Remove’ to delete an existing event.
To create a new even, just click “New” button to add an Event setting.



To add a new event, click ‘New’ button and the descriptions of every setup item is listed below:

Item	Description
Enable Setting	Check this box to enable this event. If you just want to disable this event temporarily, you can uncheck this box to keep this event and disabling while not deleting it.
Title	Input any description text for this event so you can identify it quickly. You can use alphabets, numbers, and symbols include: !$-.@^_~ (no spaces allowed).
Motion Detection	Check this box and this event will be activated when one of motion detection window detects motion.
Digital Input 1	Check this box and this event will be activated when “Digital Input 1” input signal is high or low (select from dropdown list).
Enable Schedule Time	Check this box and this event will be activated when designated weekday and time is reached. You also have to check weekday box, and select time from dropdown list. If you select ‘Always’ as time, this event will be activated during all the day.
Enable FTP	Check this box and IP camera will save file on FTP server (refer to ‘FTP Server’ setting in ‘Event Server’ tab) when this event is activated.
Enable EMAIL	Check this box and IP camera will send an Email to designated recipient address (refer to ‘SMTP Server’ setting in ‘Event Server’ tab) when this event is activated.
Enable Samba (Net Storage)	Check this box and IP camera will save file on samba server (refer to ‘Samba Server’ setting in ‘Event Server’ tab) when this event is activated.
Enable SD CARD	Check this box and IP camera will save file on SD card when this event is activated. A working SD card must be inserted into IP camera in advance.
Trigger digital output for xx second(s).	Check this box and IP camera will trigger digital out to ‘high’ state for xx seconds when this event is activated, where ‘xx’ seconds must be defined by the dropdown list.

3-9-2 Media

You can define what kind of media file should be saved on designated media.

Here are the descriptions of every setup item:

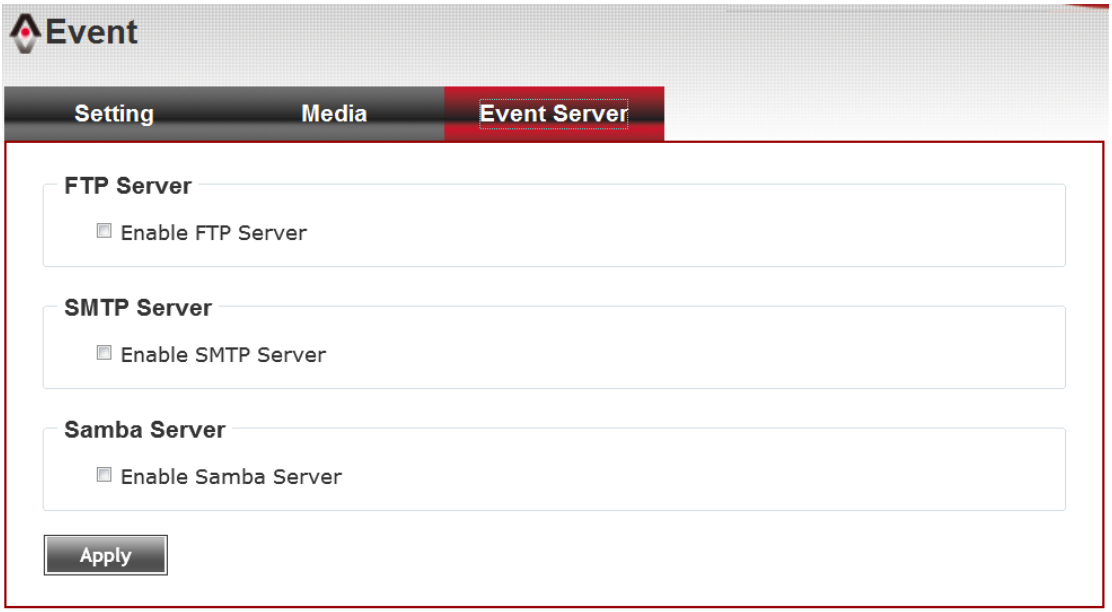
Item	Description
One Snapshot	Save a picture file when event is triggered.
Maximum Video File Size	Save a video clip. You can also select the recording length before and / or after the time when event is triggered in 'Pre Event' and 'Post' Event'. For example, if you set 'Pre Event' to '5' and 'Post Event' to 5', and an event is triggered at 14:10:30, then the video file will be 10 seconds long, starting from 14:10:25 to 14:10:35. ***Notes: The video resolution, image quality and frame rate setting will affect to max. video file size.*** ***Tips: You may want to know what happened before event is triggered in many cases, especially when object is outside of motion detection window.*** ***Note: If the "Pre Event" set to "0" second, the "Post Event" cannot set to "0" second.***

When you finish with above settings, click 'Apply' button to save changes.

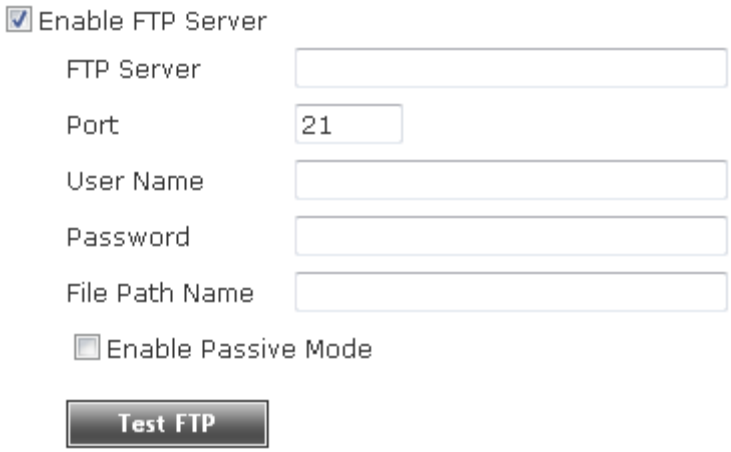
3-9-3 Event Server

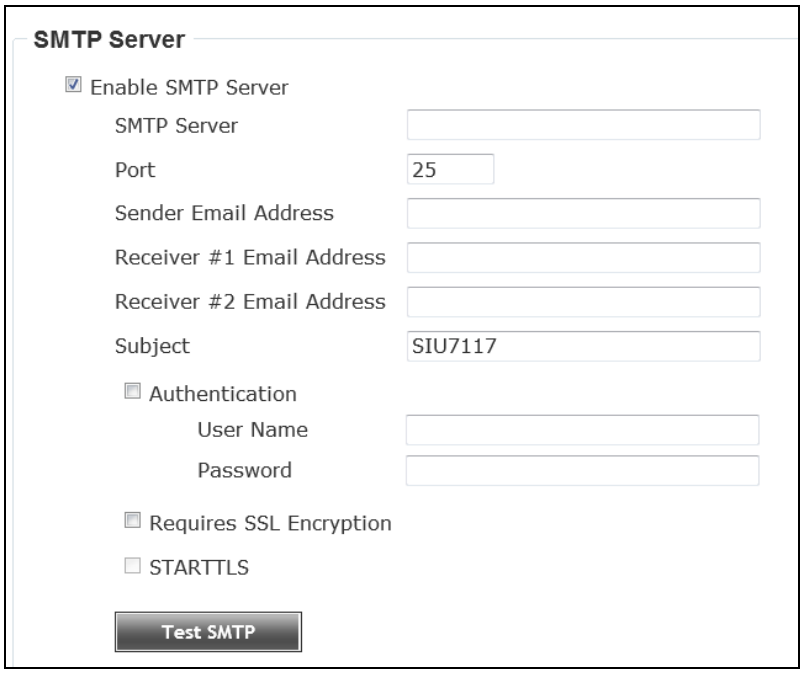
You can define the details of remote media server: FTP (File), SMTP (Email), and Samba (File).

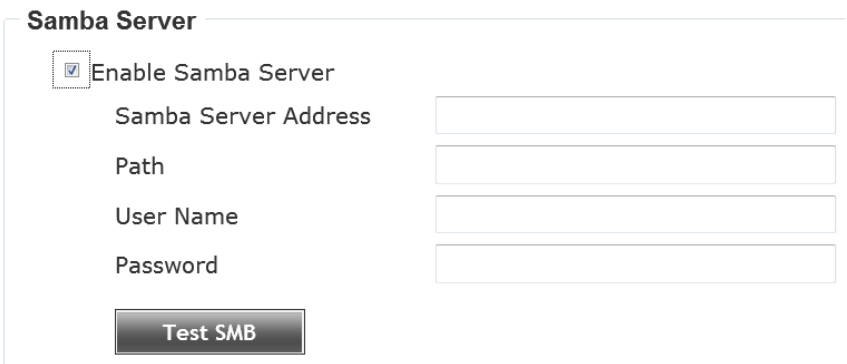
A Samba server can be any computer running windows operating system with network neighbor function enabled. Many stand-alone network file server also support samba server function.



Here are the descriptions of every setup item:

Item	Description
Enable FTP Server	Check this box to enable FTP server upload. 

	- FTP Server: Input FTP server's IP address or hostname. - Port: Input FTP server's port number. In most cases it should be default value '21'. - User Name: Input FTP server's username. - Password: Input FTP server's password. - File Path Name: Input the path where you want to save file on FTP server, like 'upload/record'. If you want to save file on this FTP user's home directory, you can leave this field blank. - Enable Passive Mode: Check this box to force IP camera to communicate with FTP server in passive mode (Some FTP Server may only work when you check this box, while others don't). - Test FTP: Click this button to test FTP server settings above immediately.
SMTP Server	Check this box to enable Email send.  - SMTP Server: Input SMTP server's IP address or hostname. - Port: Input SMTP server's port number. In most cases it should be default value '25'. - Sender Email Address: Input the sender's email address that will appear in the Email send by IP camera. This will help you to identify the Email sent

	by this IP camera, and may help when you have anti-spam software installed (you can set this Email address to 'White List' in your anti-spam software) - Receiver #1 Email Address: Input primary recipient's Email address. This field is required. - Receiver #2 Email Address: Input backup recipient's Email address. This field is optional. - Subject: Input Email title that will appear in the Email send by IP camera. This will help you to identify the Email sent by this IP camera. - Authentication: Check this box when authentication is required by the Email server you're using. You also need to input Email server's username and password in corresponding field. - Requires SSL Encryption: If your Email server required SSL encryption, check this box. Please note that some Email server uses different port number than standard port 25 when SSL encryption is used. - STARTTLS: If your Email server required STARTTLS encryption, check this box. Please note that some Email server uses different port number than standard port 25 when STARTTLS encryption is used. - Test SMTP: Click this button to test SMTP server settings above immediately.
Samba Server	Check this box to enable Samba server file upload.  - Samba Server Address: Input Samba server's IP address or hostname. - Path: Input the path where you want to save file on Samba server, like 'upload/record'. If you want to save file on this user's home directory, you can leave

	this field blank. - User Name: Input Samba server's username. - Password: Input Samba server's password. - Test SMB: Click this button to test Samba server settings above immediately. ***Tips: Some samba server does not have username and password check, you can just input samba server address and path to access the file storage space.***

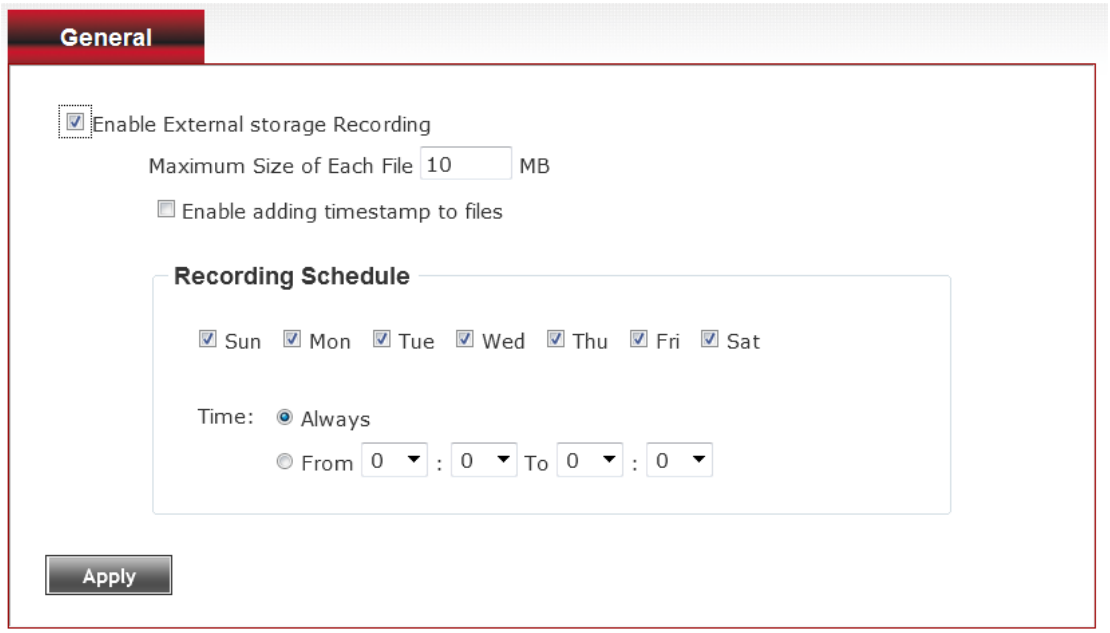
When you finish with above settings, click 'Apply' button to save changes.

3-10 Recording

When a SD card is inserted into IP camera, you can save video files on it.

Note:

Be sure that the SD Card format should be FAT32. The NTFS format cannot be supported by this camera.


General
Enable External storage Recording
Maximum Size of Each File 10 MB
Enable adding timestamp to files
Recording Schedule
Sun Mon Tue Wed Thu Fri Sat
Time: Always
From 0 : 0 To 0 : 0
Apply

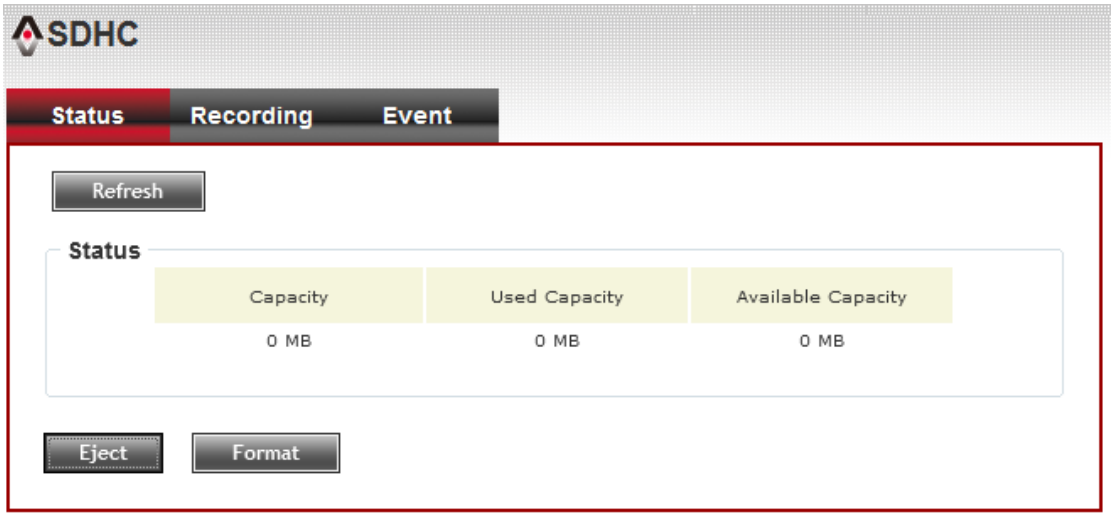
Here are the descriptions of every setup item:

Item	Description
Enable External storage Recording	Check this box to record video on SD card.
Maximum Size of Each File	Input the maximum size of every video file from 1MB to 50MB. IP camera will start a new video file when a recording video file reaches the size limit stated here.
Recording Schedule	Define the recording schedule. You can check Sun to Sat boxes to represent a weekday, and specify time period in 'From' and 'To' field. Select 'Always' to record 24 hours in selected weekday(s).

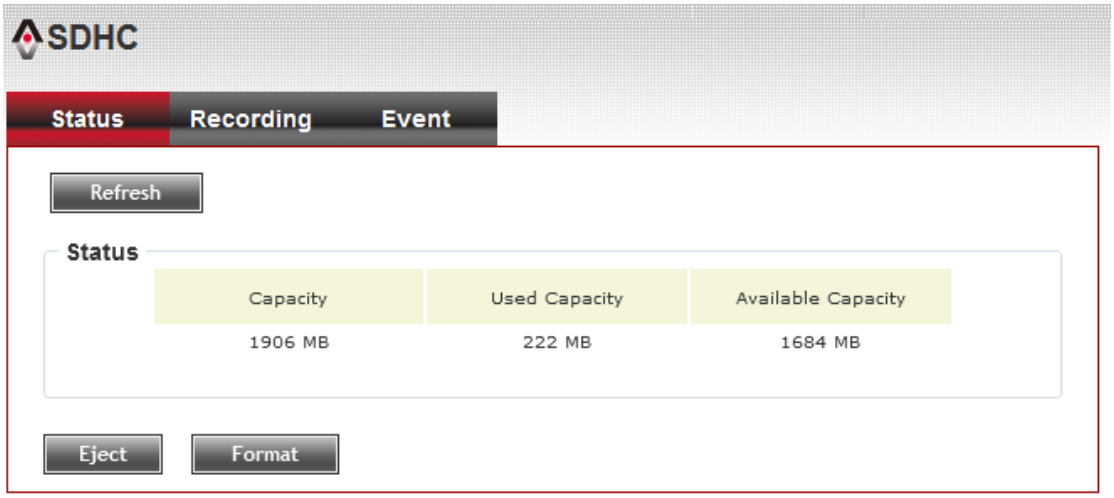
When you finish with above settings, click 'Apply' button to save changes.

3-11 SDHC

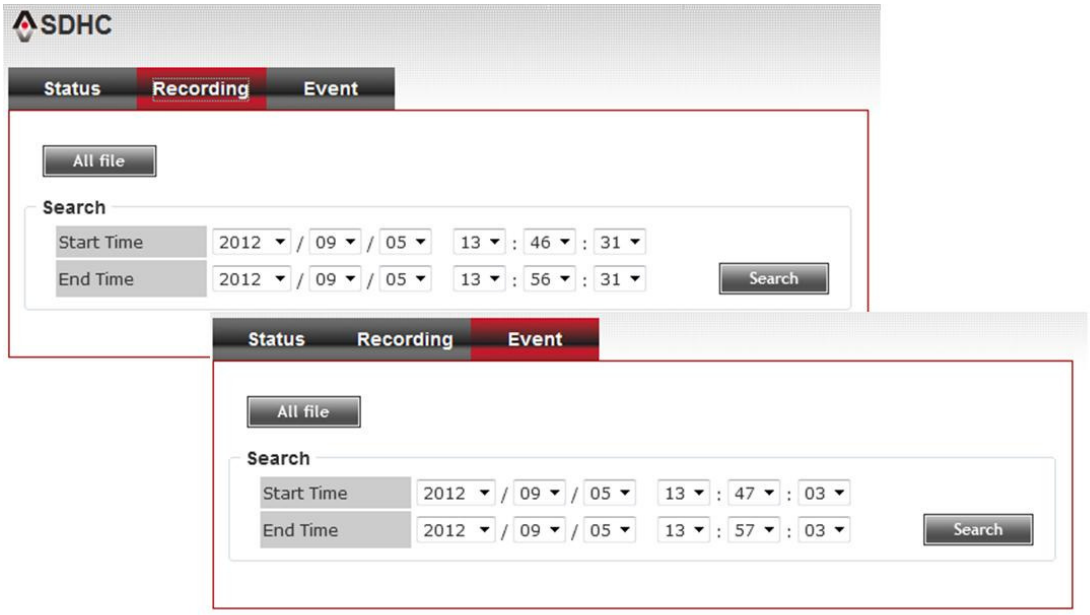
The IP camera has an optional Micro-SD card slot. The UI shows the capacity is 0 MB when the module without Micro-SD card slot and memory card.



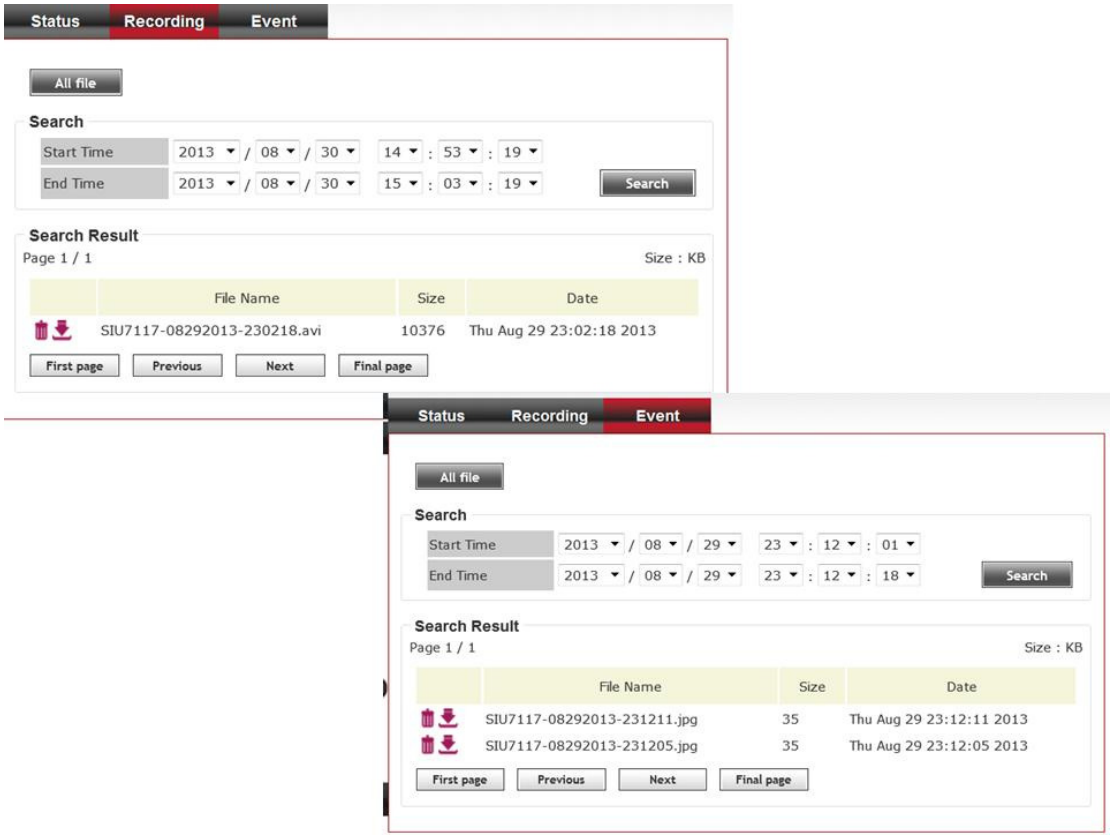
If you need the function please check the option when you place the order of the IP camera module.
Once the SD card is inserted, the UI will show the capacity of the Micro-SD card like the image hereunder.



There are two UI pages to show the record on the Micro-SD card. They are mapping to the setting of “Recording to SD card” and “Event” accordingly.
Click “All file” to list all files. You also can define the range and click “Search” to sort the files needed. It shows likes the images in the next page.

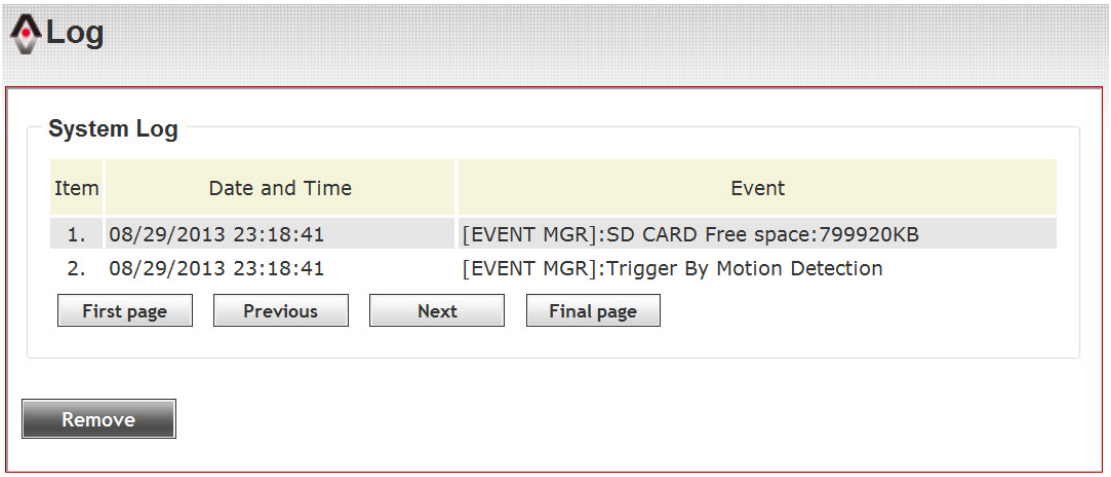


Set the time range then click “Search” then shows the records like below.



3-12 Log

You can check the usage log of IP camera here.



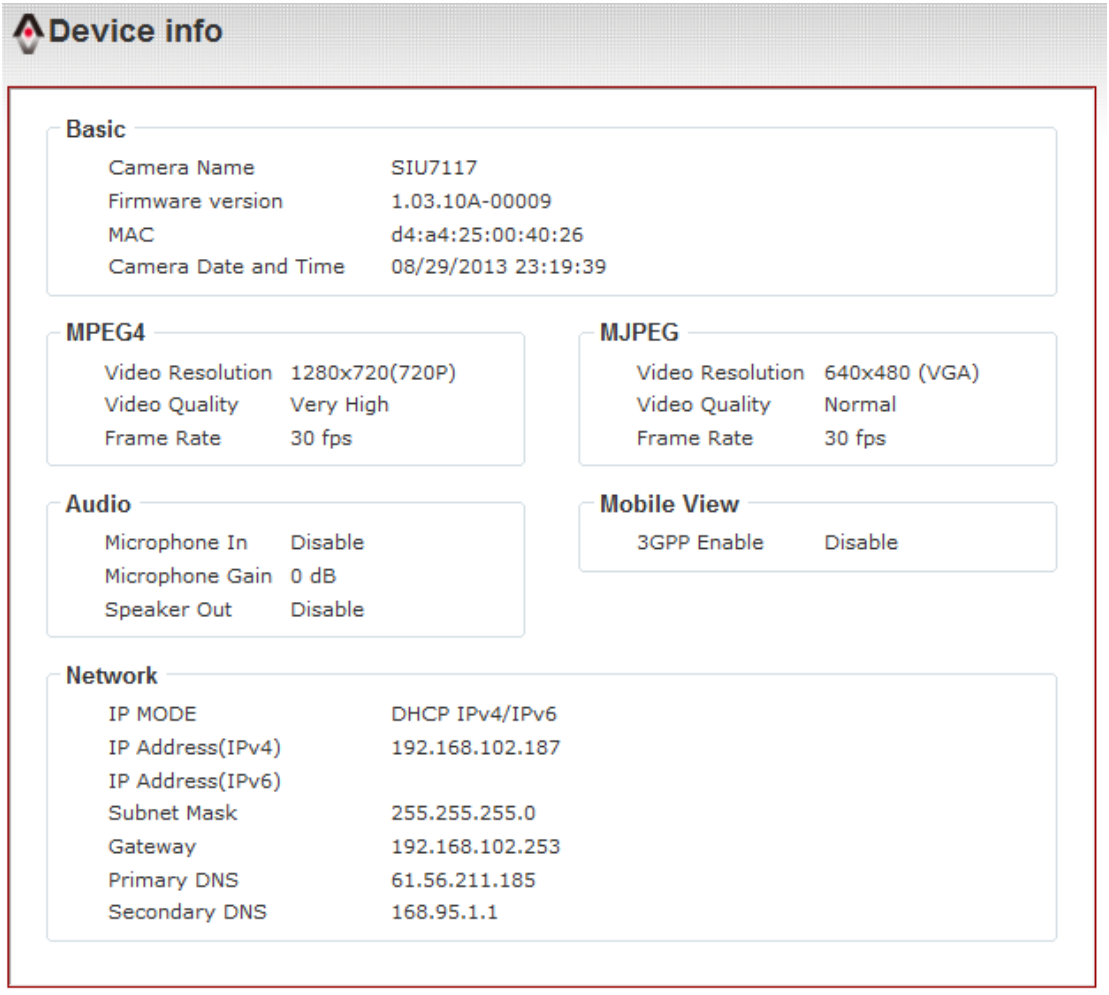
In this page, you can click:

1. First page / Final page: Jump to first / final page of log.
2. Previous / Next: Jump to previous or next page of log.
3. Remove: Clear log. You'll be prompted for confirmation.

3-13 Device Info

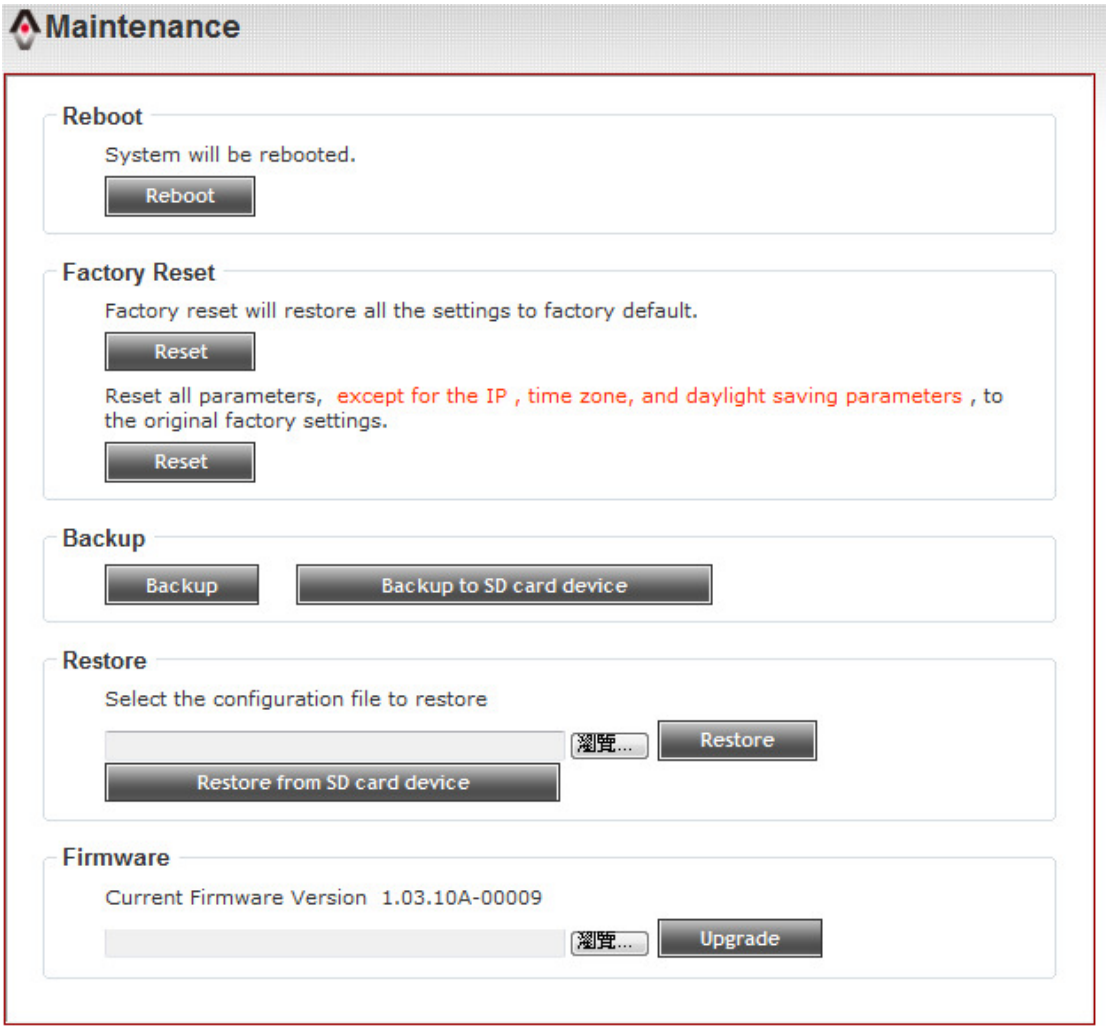
You can check the information and network settings of this IP camera. This information is very useful when you need to repair or fix the problem of this IP camera.

An example of device info page look likes this:



3-14 Maintenance

You can do some maintenance job about this IP camera here.



Here are the descriptions of every setup item:

Item	Description
Reboot	Click this button to reboot the IP camera. This function is useful when you find IP camera is not working properly.
Factory Reset	(1) Clear all settings of IP camera and reset to factory default setting. (2) Reset all parameters, except for the IP , time zone, and daylight saving parameters , to the original factory settings
Backup	Backup IP camera's setting and save it on your computer.

Backup to SD card device	Backup IP camera's setting and save it on SD card. A SD card must be inserted into SD card slot when you click this button, or you'll receive an error message.
Restore	Restore a previously-saved configuration file saved on your computer. Click 'Browse' button to select a file on your computer first, then click 'Restore' button.
Restore from SD card device	Restore IP camera's configuration which is previously-saved on SD card.
Upgrade	Upgrade IP camera's firmware. Click 'Browse' button to select a firmware image file on your computer first, then click 'Upgrade' button.

3-15 Language

You can change the display language of web interface.

Click 'Language' button and select one language. More languages may available in latest firmware file.

Chapter IV Troubleshooting

Please don’t panic when you found this IP Camera is not working properly. Before you send this IP Camera back to us, you can do some simple checks to save your time:

Problem description	**Possible solution(s)**
Can’t connect to IP Camera	1) Please check the IP address of IP Camera again. 2) Please make sure the network cable is correctly connected to your local area network. 3) Please make sure power cable is correctly connected to IP Camera. 4) Please make sure IP Camera is switched on (the LED lights on IP Camera will light up).
No IP Camera found	1) ‘Auto search’ function only works on IP Cameras located on local area network.
No image	1) If the place where IP camera is installed is too dark, try to add some lights when possible. 2) Check if there’s anything covering the lens.

How to insert the Micro-SD card?

1. remove the sun shield

2. Remove the back cover

3. The Micro-SD Card slot is shown in the following picture.

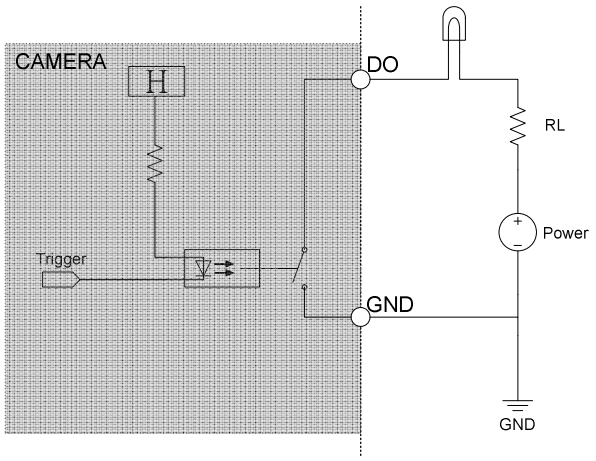
Chapter V Digital I/O User Guide

DI/DO connector – Use in applications for e.g. motion detection, event triggering, SD recording and alarm notifications via FTP/EMAIL/SAMBA.

•Digital output — For connecting external devices such as relays, alarm bell or LEDs. Connected devices can be activated by the Configuration→Event interface or digital output buttons on the Home page.

Pin	Notes	Specifications
	Trigger is “Off”, DO connect to GND Trigger is “On”, DO is floating	Max load: 30mA,30VDC

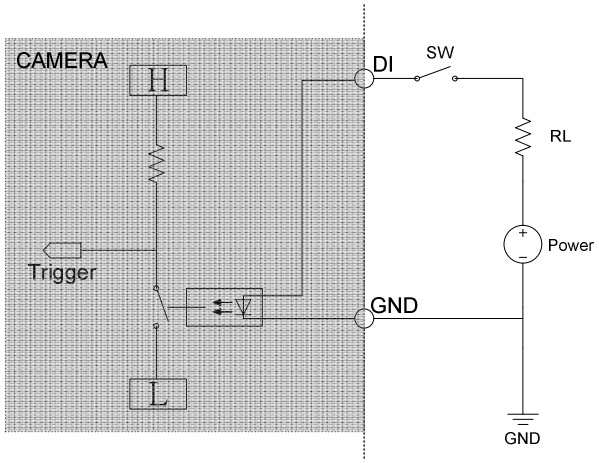
Please refer to the following illustration for DO connection method



•Digital input — An alarm input for connecting devices that can toggle between an open and closed circuit, for example: PIRs, door/window contacts, glass break detectors, etc. When a signal is received the state changes and the input becomes active.

Pin	Notes	Specifications
	DI is floating, trigger is “high” DI is high, trigger is “low”	Max current input: 30mA

Please refer to the following illustration for DI connection method



Suggested Component Value

Power(VDC)	RL(Ω)
3.3V	100Ω
5V	200Ω
12V	510Ω

Chapter VI Specification

Model No.		BU7317
Description		3MP Outdoor H.264 Day / Night IP Bullet Camera
Image Sensor	Max. Resolution	2048H x 1536V
	Format	1/3"
	Effective Pixels	2048H x 1536V
	Pixel size	2.2 x 2.2µm
	Active Image Area	4.51mm(H) x 3.38mm(V)
	Max Dynamic range	Up to 100 dB
Lens	Built-in Lens	Yes
	Lens Mount	Board
	Focal Length	3~10.5mm
	F No.	F1.4~2.0
	Auto-IRIS	Yes
	Angle of View	H: 91.2°～25.5° V: 68.4°～19.1° D: 114°～31.9°
Day/Night	Mechanical IRCF	Yes, on sensor board
	IR Distance	50M/f=10.5mm, AGC on
	IR Wave Length	850nm
Video Codec	H.264	20fps @ 2048 x 1536 30fps @ 1920 x 1080 ; 1280 x 960 ; 1280 x 720 ; 720 x 480 ; 640 x 480 ; 320 x 240
	MPEG4	30fps @ 1920 x 1080 ; 1280 x 960 ; 1280 x 720 ; 720 x 480 ; 640 x 480 ; 320 x 240
	MJPEG	30fps @1280x720 ; 720x480 ; 640x480 ; 320x240
Audio Codec		G.711 µ-law
Codec Quality	H.264	5 Levels or Bit Rate
	MPEG4	5 Levels

Options	**MJPEG**	5 Levels
Interface	**Local Storage**	Micro SD slot x 1 , SDHC
	Video out	NTSC/PAL, BNC x 1
	Alarm in/out	Alarm in x 1 / Alarm out x 1
	Network	10BaseT/100BaseT (RJ45, Female)
	Audio In / Out	Two-way
	LED Indicators	Power & Ethernet (1/1)
	RS-485	x1
	Reset	Yes
Power Supply	**PoE**	Yes, IEEE802.3af compliant
	AC-DC Power	DC 12V
Special Features	**Motion Detection**	Yes, 3 scalable windows
	Image Settings	Brightness, Contrast, Sharpness, Saturation Adjustable
	Alarm Buffer	5 sec. pre-alarm / 5 sec. post-alarm, up to 3MByte
	Mirror	Vertical / Horizontal
	ONVIF	Yes
	Optical zoom	3.5x optical zoom External adjust zoom/focus
	Digital Zoom	Yes, up to 10x
	Remote Pan / Tilt	Yes
	3GPP Supported	Yes
	Packet Management	IP Filter ; QoS
	Time Management	Manual Time Setting, Time Server & NTP Support, Real Time Clock
	Multi-level User Access	Yes
	Multiple Streaming	Yes
Environment	**Operating Temp. / Humidity**	-40°C ~ 50°C (-40°F ~ 122°F) , 20% ~ 85% RH
	Storage Temp.	-20°C~60°C (-4°F ~ 140°F)
	Weather Proof	IP66
Protocols		TCP/IP, IPv4, IPv6, UDP, ICMP, DHCP, NTP, DNS, DDNS, SMTP, FTP, HTTP, HTTPs, Samba, PPPoE, UPnP, Bonjour, RTP, RTSP, RTCP
Mechanical	**Dimensions**	ø 73mm x L 183mm

	Accessory	User Manual and Free bundled software CD ROM 1 x Quick Installation Guide , Bracket and Kit
Certificate		CE,FCC

Physical Info.	
WEIGHT	1330gm (Camera body only)
DIMENSIONS	ϕ73.0mm x 233.5mm (L)